HRSD

Cleaning wastewater every day for a better Bay.

June 6, 2011

**HAND-DELIVERED**

RECEIVED – DEQ
JUN 0 6 2011
Tidewater Regional Office

Deanna Austin
Dept of Environmental Quality
5636 Southern Blvd
Virginia Beach, VA 23462

RE: Atlantic STP VA0081248 VPDES Permit Application

Dear Mrs. Austin,

Enclosed is the Atlantic STP VPDES permit application package along with a disk containing a copy of the contents of the package. In addition to the required DEQ forms, HRSD has included four attachments to address specific issues in the proposed permit.

The first attachment includes a summary of the acute toxicity tests. All of the eight tests indicated no toxicity in the effluent.

Attachment 2 is a review of the toxics data. None of the parameters monitored for the permit application indicated a reasonable potential to exceed water quality standards.

Attachment 3 contains a request to include language in the VPDES permit to allow for a sampling frequency reduction after an appropriate amount of data has been submitted.

Attachment 4 addresses the solids management plan. The proposed biosolids land application regulations require the submittal of an odor control plan with the permit application. Although the regulations have not yet been promulgated, HRSD offers DEQ a copy of the current HRSD procedure for addressing malodorous solids. A list of proposed sites for permitting has also been included in this attachment. HRSD is awaiting the results of the soil analyses for these sites as well as signatures for some of the landowner agreements. The site booklets will be submitted to your office in the near future in order to include these sites in the permit renewal process.

Please contact me immediately if you have any questions or desire supplemental information.

Sincerely,

James J. Pletl, Ph.D.
Chief of Technical Services Division

Enclosures

**Water Quality Department** • PO Box 5911, Virginia Beach, VA 23471-0911 • 757.460.7004 • Fax 757.318.6452

HRSD

Cleaning wastewater every day for a better Bay.

June 24, 2011 **HAND-DELIVERED**



Deanna Austin
Dept of Environmental Quality
5636 Southern Blvd
Virginia Beach, VA 23462

RE: Atlantic STP VA0081248
Supplemental information to solids management application

Dear Mrs. Austin,

Enclosed is the required information for the land application sites proposed to be added to the Atlantic STP VPDES permit along with a disk containing a copy of the contents of the package. These site packages were not included in the VPDES permit application submitted to your office on June 6, 2011 because HRSD was awaiting the results of the soil analyses for these sites as well as signatures for some of the landowner agreements. The information packages are now complete and are offered for DEQ's consideration.

Please contact me immediately if you have any questions or desire supplemental information.

Sincerely,

Sharon Nicklas
Permits Manager

Enclosures

**Water Quality Department** • PO Box 5911, Virginia Beach, VA 23471-0911 • 757.460.7004 • Fax 757.318.6452

ATLANTIC STP VA0081248 PROPOSED SITES FOR PERMIT

| Landowner | City | Site | Usable Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| Thomas Morris | Chesapeake | T-478 | 17.2 | N36°36'35.09" | W76°07'54.25a' | 1840 Sanderson Road |
| Mary Clendenning | Chesapeake | T-1296 | 5.9 | N36°42'43.43" | W76°08'26.32" | 1936 Mt. Pleasant Rd |
| Robert Old | Chesapeake | T-485 | 35.7 | N36°34'33.79" | W76°11'11.43" | Between Indian Creek Rd. and Gallbush Rd. |
| Neil Powers | Chesapeake | T-934 | 23.3 | N36°33'43.37" | W76°11'29.53" | Off of Neck Rd. |
| | | | **82.1** | | | |
| Donald Horsley | Virginia Beach | T-9 | 71.9 | N36°39'05.40" | W76°06'48.50" | Land of Promise Rd. |
| Kathy Vaughan-Lloyd | Virginia Beach | T-4380 | 32.9 | N36°38'29.20" | W76°01'37.87" | Vaughan Road |
| William Vaughan | Virginia Beach | T-4341 | 13.6 | N36°40'29.20" | W76°01'37.87" | Vaughan Road |
| William Vaughan | Virginia Beach | T-4467 | 15.6 | N36°40'29.20" | W76°01'37.87" | Vaughan Road |
| Nicholas M. Meiszer | Virginia Beach | T-4488 | 73.5 | N36°40'29.20" | W76°00'52.38" | Princess Anne Rd. and Vaughan Rd. |
| Wilmar Aygarn | Virginia Beach | T-4397 | 35.2 | N36°38'59.06" | W76°03'11.93" | Stowe Road |
| Carolyn Lovitt | Virginia Beach | T-294 | 54.4 | N36°40'29.20" | W76°00'52.38" | Corner of Gum Bridge Rd and Dawley Rd |
| | | | **297.1** | | | |
| | | | **379.2** | | | |

Each Land App Site book added to ECM as a separate document.

DDA
7/29/11

## PLANT TOXICITY TEST DATA REVIEW

HRSD has completed acute monitoring required of the permit and permit application. Chronic testing is not required for this permit. The results of acute monitoring are as follows:

| Date(s) | Species | LC50 (%) | $TU_a$ | Survival |
|---|---|---|---|---|
| 8/10/07 | A.bahia | > 11.2 | < 8.9 | 95 |
| 8/10/07 | C. variegatus | > 11.2 | < 8.9 | 100 |
| 4/4/08 | A.bahia | > 11.2 | < 8.9 | 95 |
| 4/4/08 | C. variegatus | > 11.2 | < 8.9 | 100 |
| 2/13/09 | A.bahia | > 11.2 | < 8.9 | 100 |
| 2/13/09 | C. variegatus | > 11.2 | < 8.9 | 100 |
| 8/14/10 | A.bahia | > 11.2 | < 8.9 | 95 |
| 8/14/10 | C. variegatus | > 11.2 | < 8.9 | 100 |

The decision criterion of the current permit requires that the acute LC50 for these tests must be greater than 3% effluent with a Toxic Unit equivalency ($TU_a$) of $\leq 33$. This requirement has been met in every case. The 3% effluent acute decision criterion was based on an estimate of initial dilution of 109:1, approved upon expansion of the plant in the last permit cycle. The annual test for 2011 is scheduled for October.

## PLANT TOXICS DATA REVIEW

The final effluent data collected for the Atlantic Plant's 2011 VPDES permit application is discussed below.

Monitoring activities did not identify quantifiable total nor dissolved metals or organics in the Atlantic plant final effluent. Reasonable potential determinations are therefore not necessary for these parameters.

A total of three cyanide data points were collected for the Atlantic Plant permit application using an appropriate quantification limit (QL = 10 ppb). Two additional cyanide data points were collected but the QLs were inappropriate for evaluating reasonable potential (QL = 30 ppb). HRSD ran DEQ's most recent computer program for evaluating the need for limits using the 3 data points with appropriate QLs (results [ppb] <10, <10, 14). This program determined that no limit for cyanide was necessary for this facility given acute (109: 1) and chronic (741:1) mixing zone dilutions (see output below).

4/19/2011 7:58:29 AM

Facility = Atlantic STP
Chemical = Cyanide
Chronic averaging period = 30
WLAa = 27
WLAc = 190
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

# observations = 3
Expected Value = 9.27748
Variance = 30.9858
C.V. = 0.6
97th percentile daily values = 22.5760
97th percentile 4 day average = 15.4357
97th percentile 30 day average= 11.1891
# < Q.L. = 2
Model used = BPJ Assumptions, Type 1 data

No Limit is required for this material

The data are:

0
0
14

Ammonia data were collected for the permit application. HRSD ran DEQ's most recent computer program for evaluating the need for limits using 10 data points, all with a QL of 0.20 ug/L. This program determined that no limit for ammonia was necessary for this facility given acute (109: 1) and chronic (741:1) mixing zone dilutions (see output below).

6/3/2011 7:30:29 AM

Facility = Atlantic STP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 59
WLAc = 50
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:
# observations = 10
Expected Value = 36.7820
Variance = 15.4806
C.V. = 0.106969
97th percentile daily values = 44.6993
97th percentile 4 day average = 40.6140
97th percentile 30 day average= 38.1332
# < Q.L. = 0
Model used = lognormal

No Limit is required for this material

The data are:

32.1
32.3
39.6
42.2
33.3
32.4
37.6
41.1
38.4
38.6

## REDUCED MONITORING

Atlantic STP began daily monitoring for Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), and Fecal Coliform (FC) on May 1, 2010 as directed by the current permit. Below is a summary of the monthly averages since daily sampling has been implemented.

| MONTH | BOD | TSS | Fecal Coliform |
|---|---|---|---|
| May 2010 | 7 | 5 | 3 |
| June 2010 | 10 | 5.5 | 4 |
| July 2010 | 4 | 4.0 | 2 |
| August 2010 | 7 | 4.9 | 3 |
| September 2010 | 13 | 8.1 | 5 |
| October 2010 | 11 | 6.5 | 3 |
| November 2010 | 10 | 9.9 | 2 |
| December 2010 | 11 | 10 | 2 |
| January 2011 | 11 | 9.2 | 1 |
| February 2011 | 11 | 8.9 | 2 |
| March 2011 | 13 | 7.0 | 2 |
| April 2011 | 16 | 9.0 | 2 |
| Average | 10 | 7 | 3 |
| Percent of Permit limit | 34% | 24% | 1% |

Guidance Memorandum 98-2005 recommends that three years of plant performance data be reviewed prior to determining if a facility is eligible for reduced monitoring. The three-year monitoring period will end in April 2013 which is only 14 months into the Atlantic STP 60-month permit term, based on a reissuance date of January 2012. The first year's worth of data indicates that it is very likely that the Atlantic STP will be eligible for reduced monitoring. Therefore, HRSD requests that language be included in the VPDES permit which allows for modification of the sample frequency upon DEQ's review of the May 2010 to April 2013 DMR data.

# ATLANTIC STP VA0081248
# ODOR CONTROL PLAN

The following odor control plan is designed to minimize odors and address malodors during biosolids production, storage and land application operations.

**Methods used to minimize odor in producing biosolids.**
Solids are treated in digesters between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius to achieve proper pathogen reduction. Volatile solids content is monitored with a target of 38% reduction in order to attain vector attraction reduction. Whenever the biosolids do not achieve 38% volatile solids reduction prior to land application, the biosolids are flagged and the contractor is notified. The certified land applier is instructed to incorporate the biosolids within 6 hours in order to be in compliance with 40CFR503 vector attraction reduction requirements. The biosolids are stored on two sheltered concrete storage pads located onsite at the Atlantic STP. The storage pads are divided into bays that have unique identification numbers. The biosolids are stacked by the contractor into the bays using a front end loader When a bay is completely filled, HRSD records the date on the storage pad schematic. The schematic is updated weekly by the Atlantic STP Solids Handling Operator and submitted to the Recycling Manager for review. The windrow storage of biosolids provides additional "curing" time prior to land application and is effective in helping to minimize odors. Using the storage pad schematic, the Recycling Manager can identify the biosolids that have been cured for the longest period of time and ensure the land application contractor empties these bays first during land application operations.

**Methods used to identify malodorous biosolids before land application (at the generating facility).**
The storage pad bay numbering and dating system provides HRSD the ability to track and flag any malodorous material before it is land applied. Biosolids identified as being malodorous will be marked with orange flags and the land application contractor will be notified prior to land application. Both HRSD employees and the land application contractor in charge of managing the storage pad have the authority to flag a bay as being malodorous. The land application contractor responsible for loading biosolids onto hauling vehicles will notify the certified land applier in the field prior to loading any malodorous material. The certified land applier will determine if there is a remote area of a permitted field that can receive the malodorous material. If there is such an area available, then the certified land applier will allow the material to be transported to the field. The loader operator will provide the certified land applier the truck number assigned to carry the malodorous load to the field to ensure it is handled properly. If there is no remote area available, then the malodorous biosolids will remain at the plant storage pad for further processing.

**Methods used to identify and abate malodorous biosolids that have been delivered to the field, prior to land application.**
The certified land applier working in the field will direct any trucks that have been identified as carrying malodorous material to a suitable remote application area in the field. The material will be immediately spread and incorporated.

# ATLANTIC STP VA0081248
# ODOR CONTROL PLAN

If upon truck arrival at the site, the certified land applier determines the malodorous material cannot be effectively managed at the field, then the hauler will be directed to return the malodorous biosolids to the Atlantic STP Storage Pad. If biosolids are emptied onto a permitted field and the certified land applier determines that the biosolids are malodorous and cannot be effectively managed to control odor, then the certified land applier will direct the loader operator to pick up the material and return it to the Atlantic STP Storage Pad. The HRSD Recycling Manager or designated HRSD representative will be notified immediately if the biosolids are returned to the Atlantic STP Storage Pad. HRSD will be responsible for investigating and determining a plan of action to address the problem. The biosolids may undergo further processing or be sent to the landfill. HRSD will inform the land application contractor of the corrective action taken.

**Methods used to abate malodors from biosolids if land applied.**
Any malodorous biosolids that are land applied in a remote area on a permitted field will be immediately spread and incorporated. It is HRSD's experience that land application followed by immediate incorporation is effective in controlling odors.

## PROPOSED NEW SITES FOR PERMITTING

| Landowner | Operator | Location | FSA farm # | Tract # | Acres |
|---|---|---|---|---|---|
| | | | | | |
| Thomas Morris | Thomas Morris | Chesapeake | 1467 | 478 | 18.8 |
| Mary Clendenning | Olin Slabaugh | Chesapeake | 296 | 1296 | 6.37 |
| Robert Old | O. G. Weatherly | Chesapeake | 1414 | 485 | 39.3 |
| Neil Powers | O. G. Weatherly | Chesapeake | 1542 | 934 | 25.2 |
| Bobby White | O. G. Weatherly | Chesapeake | 1627 | 1863 | 36.3 |
| Donald Horsley | Donald Horsley | Virginia Beach | 9 | 9 | 91.58 |
| Kathy Vaughan | William Vaughan | Virginia Beach | 1332 | 4380 | 33.96 |
| William Vaughan | William Vaughan | Virginia Beach | 1574 | 4341 | 14.14 |
| William Vaughan | William Vaughan | Virginia Beach | 1574 | 4467 | 16.9 |
| Nicholas M. Meiszer | William Vaughan | Virginia Beach | 1567 | 4488 | 78.34 |
| Wilmar Aygarn | William Vaughan | Virginia Beach | 1384 | 4397 | 37.06 |
| Carolyn Lovitt | William Vaughan | Virginia Beach | 1453 | 294 | 57.31 |
| | | | | | **455.26** |

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

# GENERAL INFORMATION

*Consolidated Permits Program*

*(Read the "General Instructions" before starting.)*

I. EPA I.D. NUMBER

| S | | T/A | C |
|---|---|---|---|
| F | | | D |
| 1 2 | 13 | 14 | 15 |

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

## II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

| SPECIFIC QUESTIONS | Mark "X" YES | NO | FORM ATTACHED | SPECIFIC QUESTIONS | Mark "X" YES | NO | FORM ATTACHED |
|---|---|---|---|---|---|---|---|
| A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A) | X (16) | (17) | X (18) | B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B) | (19) | X (20) | (21) |
| C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C) | (22) | X (23) | (24) | D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D) | (25) | X (26) | (27) |
| E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3) | X (28) | (29) | (30) | F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4) | (31) | X (32) | (33) |
| G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4) | (34) | X (35) | (36) | H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4) | (37) | X (38) | (39) |
| I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5) | (40) | X (41) | (42) | J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5) | (43) | X (44) | (45) |

## III. NAME OF FACILITY

1 SKIP: HRSD-ATLANTIC STP

## IV. FACILITY CONTACT

| A. NAME & TITLE *(last, first, & title)* | B. PHONE *(area code & no.)* |
|---|---|
| 2 JAMES PLETL CHIEF OF TECHNICAL SERVICES DIVISION | (757) 460-4246 |

## V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 1436 AIR RAIL AVENUE

| B. CITY OR TOWN | C. STATE | D. ZIP CODE |
|---|---|---|
| 4 VIRGINIA BEACH | VA | 23455 |

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## VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 645 FIREFALL DRIVE

B. COUNTY NAME

| C. CITY OR TOWN | D. STATE | E. ZIP CODE | F. COUNTY CODE *(if known)* |
|---|---|---|---|
| 6 VIRGINIA BEACH | VA | 23454 | |

CONTINUED FROM THE FRONT

**VII. SIC CODES** *(4-digit, in order of priority)*

| A. FIRST | B. SECOND |
|---|---|
| 4952 (specify) WASTEWATER TREATMENT | (specify) |

| C. THIRD | D. FOURTH |
|---|---|
| (specify) | (specify) |

**VIII. OPERATOR INFORMATION**

A. NAME: HAMPTON ROADS SANITATION DISTRICT

B. Is the name listed in Item VIII-A also the owner? ☑ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

M (specify) POLITICAL SUBDIVISION OF STATE

D. PHONE *(area code & no.)*: A (757) 460-4246

E. STREET OR P.O. BOX: 1436 AIR RAIL AVENUE

F. CITY OR TOWN: VIRGINIA BEACH

G. STATE: VA

H. ZIP CODE: 23455

**IX. INDIAN LAND**

Is the facility located on Indian lands? ☐ YES ☑ NO

**X. EXISTING ENVIRONMENTAL PERMITS**

| A. NPDES *(Discharges to Surface Water)* | D. PSD *(Air Emissions from Proposed Sources)* |
|---|---|
| 9 N VA0081248 | 9 P |

| B. UIC *(Underground Injection of Fluids)* | E. OTHER *(specify)* |
|---|---|
| 9 U | 9 60349 (specify) AIR |

| C. RCRA *(Hazardous Wastes)* | E. OTHER *(specify)* |
|---|---|
| 9 R VAD000797522 | 9 (specify) |

**XI. MAP**

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

**XII. NATURE OF BUSINESS** *(provide a brief description)*

FACILITY PROVIDES SECONDARY WASTEWATER TREATMENT. RECEIVES FLOW FROM PARTS OF VIRGINIA BEACH AND CHESAPEAKE.

**XIII. CERTIFICATION** *(see instructions)*

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| A. NAME & OFFICIAL TITLE *(type or print)* | B. SIGNATURE | C. DATE SIGNED |
|---|---|---|
| EDWARD G. HENIFIN GENERAL MANAGER | [signature] | 6/6/2011 |

COMMENTS FOR OFFICIAL USE ONLY

C

**VPDES Permit Application Addendum**

1. **Entity to whom the permit is to be issued**: Hampton Roads Sanitation District

*Who will be legally responsible for the wastewater treatment facilities and compliance with the permit? This may or may not be the facility or property owner.*

2. **Is this facility located within city or town boundaries?** Yes ☒ No ☐

3. **Provide the tax map parcel number for the land where the discharge is located.** Dam Neck Par B, C 68.661 AC

4. **For the facility to be covered by this permit, how many acres will be disturbed during the next five years due to new construction activities?** none

5. **What is the design average effluent flow of this facility?** 54 MGD
**For industrial facilities, provide the max. 30-day average production level, include units:**

**In addition to the design flow or production level, should the permit be written with limits for any other discharge flow tiers or production levels?** Yes ☐ No ☒
If "Yes", please identify the other flow tiers (in MGD) or production levels:

*Please consider the following questions for both the flow tiers and the production levels (if applicable): Do you plan to expand operations during the next five years? Is your facility's design flow considerably greater than your current flow?*

6. **Nature of operations generating wastewater**:
Domestic and industrial

95 % of flow from domestic connections/sources

Number of private residences to be served by the treatment works: Population 348,945

5 % of flow from non-domestic connections/sources

7. **Mode of discharge**: ☒ Continuous ☐ Intermittent ☐ Seasonal
Describe frequency and duration of intermittent or seasonal discharges:

8. **Identify the characteristics of the receiving stream at the point just above the facility's discharge point:**

___ Permanent stream, never dry
___ Intermittent stream, usually flowing, sometimes dry
___ Ephemeral stream, wet-weather flow, often dry
___ Effluent-dependent stream, usually or always dry without effluent flow
___ Lake or pond at or below the discharge point
☒ Other: Ocean

9. **Approval Date(s)**: Revised O & M Manual submitted for review in 2010.
**O & M Manual** 1/17/2007 **Sludge/Solids Management Plan** 1/17/2007

Have there been any changes in your operations or procedures since the above approval dates? Yes ☒ No ☐

FACILITY NAME AND PERMIT NUMBER:
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

FORM 2A NPDES

# NPDES FORM 2A APPLICATION OVERVIEW

## APPLICATION OVERVIEW

**Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.**

### BASIC APPLICATION INFORMATION:

A. **Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.

B. **Additional Application Information for Applicants with a Design Flow ≥ 0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.

C. **Certification.** All applicants must complete Part C (Certification).

### SUPPLEMENTAL APPLICATION INFORMATION:

D. **Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to provide the information.

E. **Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to submit results of toxicity testing.

F. **Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:

1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
2. Any other industrial user that:
   a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
   b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
   c. Is designated as an SIU by the control authority.

G. **Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

**ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)**

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

# BASIC APPLICATION INFORMATION

## PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

**All treatment works must complete questions A.1 through A.8 of this Basic Application Information packet.**

**A.1. Facility Information.**

Facility name: Atlantic STP

Mailing Address: 1436 Air Rail Avenue
Virginia Beach, VA 23455

Contact person: James Pletl

Title: Chief of Technical Services Division

Telephone number: (757) 460-4246

Facility Address (not P.O. Box): 645 Firefall Drive
Virginia Beach, VA 23454

**A.2. Applicant Information.** If the applicant is different from the above, provide the following:

Applicant name: Hampton Roads Sanitation District

Mailing Address: 1436 Air Rail Avenue
Virginia Beach, VA 23455

Contact person: James Pletl

Title: Chief of Technical Services Division

Telephone number: (757) 460-4246

**Is the applicant the owner or operator (or both) of the treatment works?**

✓ owner ✓ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.

_____ facility ✓ applicant

**A.3. Existing Environmental Permits.** Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

| | | | |
|---|---|---|---|
| NPDES | VA0081248 | PSD | |
| UIC | | Other | DEQ-Air 60959 |
| RCRA | VAD980720353 | Other | |

**A.4. Collection System Information.** Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

| Name | Population Served | Type of Collection System | Ownership |
|---|---|---|---|
| Virginia Beach | 284826 | separate | municipal/HRSD |
| Chesapeake | 64119 | separate | municipal/HRSD |
| | | | |

**Total population served** 348945

**A.5. Indian Country.**

a. Is the treatment works located in Indian Country?

_____ Yes ✓ No

b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

_____ Yes ✓ No

**A.6. Flow.** Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

a. Design flow rate 54 mgd

| | Two Years Ago | Last Year | This Year | |
|---|---|---|---|---|
| b. Annual average daily flow rate | 27.15 | 28.23 | 30.52 | mgd |
| c. Maximum daily flow rate | 40.34 | 63.16 | 44.04 | mgd |

**A.7. Collection System.** Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

| | |
|---|---|
| ✓ Separate sanitary sewer | 100 % |
| _____ Combined storm and sanitary sewer | _____ % |

**A.8. Discharges and Other Disposal Methods.**

a. Does the treatment works discharge effluent to waters of the U.S.? ✓ Yes _____ No

If yes, list how many of each of the following types of discharge points the treatment works uses:

| | |
|---|---|
| i. Discharges of treated effluent | 1 |
| ii. Discharges of untreated or partially treated effluent | |
| iii. Combined sewer overflow points | |
| iv. Constructed emergency overflows (prior to the headworks) | |
| v. Other _____ | |

b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? _____ Yes ✓ No

If yes, provide the following for each surface impoundment:

Location: _____

Annual average daily volume discharged to surface impoundment(s) _____ mgd

Is discharge _____ continuous or _____ intermittent?

c. Does the treatment works land-apply treated wastewater? _____ Yes ✓ No

If yes, provide the following for each land application site:

Location: _____

Number of acres: _____

Annual average daily volume applied to site: _____ Mgd

Is land application _____ continuous or _____ intermittent?

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? _____ Yes ✓ No

If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

If transport is by a party other than the applicant, provide:

Transporter name: _____

Mailing Address: _____

_____

Contact person: _____

Title: _____

Telephone number: _____

For each treatment works that receives this discharge, provide the following:

Name: _____

Mailing Address: _____

_____

Contact person: _____

Title: _____

Telephone number: _____

If known, provide the NPDES permit number of the treatment works that receives this discharge. _____

Provide the average daily flow rate from the treatment works into the receiving facility. _____ mgd

e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)? _____ Yes ✓ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):

_____

Annual daily volume disposed of by this method: _____

Is disposal through this method _____ continuous or _____ intermittent?

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

**WASTEWATER DISCHARGES:**

**If you answered "yes" to question A.8.a, complete questions A.9 through A.12 once for each outfall** (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. **If you answered "no" to question A.8.a**, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

**A.9. Description of Outfall.**

a. Outfall number: 001

b. Location: Virginia Beach (City or town, if applicable); 23454 (Zip Code); Virginia (County); Virginia (State); 36 47' 12" (Latitude); 75 55' 37" (Longitude)

c. Distance from shore (if applicable): 9510 ft.

d. Depth below surface (if applicable): 28 ft.

e. Average daily flow rate: 30.52 mgd

f. Does this outfall have either an intermittent or a periodic discharge? ____ Yes ✓ No (go to A.9.g.)

If yes, provide the following information:

Number of times per year discharge occurs: ____

Average duration of each discharge: ____

Average flow per discharge: ____ mgd

Months in which discharge occurs: ____

g. Is outfall equipped with a diffuser? ✓ Yes ____ No

**A.10. Description of Receiving Waters.**

a. Name of receiving water: Atlantic Ocean

b. Name of watershed (if known): ____

United States Soil Conservation Service 14-digit watershed code (if known): ____

c. Name of State Management/River Basin (if known): ____

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): ____

d. Critical low flow of receiving stream (if applicable):
acute not applicable cfs chronic not applicable cfs

e. Total hardness of receiving stream at critical low flow (if applicable): not applicable mg/l of $CaCO_3$

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

**A.11. Description of Treatment.**

a. What levels of treatment are provided? Check all that apply.

_____ Primary ✓ Secondary

_____ Advanced _____ Other. Describe: _____

b. Indicate the following removal rates (as applicable):

| | | |
|---|---|---|
| Design $BOD_5$ removal or Design $CBOD_5$ removal | 85 | % |
| Design SS removal | 85 | % |
| Design P removal | NA | % |
| Design N removal | NA | % |
| Other _____ | _____ | % |

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

hypochlorite solution

If disinfection is by chlorination, is dechlorination used for this outfall? _____ Yes ✓ No

d. Does the treatment plant have post aeration? _____ Yes ✓ No

**A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.**

Outfall number: 001

| PARAMETER | MAXIMUM DAILY VALUE | | AVERAGE DAILY VALUE | | |
|---|---|---|---|---|---|
| | Value | Units | Value | Units | Number of Samples |
| pH (Minimum) | 6.4 | s.u. | | | |
| pH (Maximum) | 7.5 | s.u. | | | |
| Flow Rate | 44.04 | mgd | 30.52 | mgd | continuous |
| Temperature (Winter) | 21 | Centigrade | 15 | Celsius | 90 |
| Temperature (Summer) | 29 | Centigrade | 27 | Celsius | 92 |

* For pH please report a minimum and a maximum daily value

| POLLUTANT | | MAXIMUM DAILY DISCHARGE | | AVERAGE DAILY DISCHARGE | | | ANALYTICAL METHOD | ~~ML / MDL~~ Report Limit |
|---|---|---|---|---|---|---|---|---|
| | | Conc. | Units | Conc. | Units | Number of Samples | | |
| **CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.** | | | | | | | | |
| BIOCHEMICAL OXYGEN DEMAND (Report one) | BOD-5 | 27 | mg/l | 9 | mg/l | 342 | SM5210B | 2 |
| | CBOD-5 | | | | | | | |
| FECAL COLIFORM | | 2400 | #/100 ml | 2 | #/100 ml | 341 | SM 9222D | 1 |
| TOTAL SUSPENDED SOLIDS (TSS) | | 50 | mg/l | 7.8 | mg/l | 346 | SM2540D | 1.0 |

**END OF PART A.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**


Report Limit is the lowest concentration at which quantitation is demonstrated.

# BASIC APPLICATION INFORMATION

## PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate ≥ 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

**B.1. Inflow and Infiltration.** Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

unknown gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

HRSD is currently under DEQ Consent Order with localities to reduce I/I. HRSD is also under an EPA Consent Decree for upgrading the interceptor system.

**B.2. Topographic Map.** Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

a. The area surrounding the treatment plant, including all unit processes.

b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.

c. Each well where wastewater from the treatment plant is injected underground.

d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.

e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.

f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

**B.3. Process Flow Diagram or Schematic.** Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g, chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

**B.4. Operation/Maintenance Performed by Contractor(s).**

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ____Yes ✓No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: _____

Mailing Address: _____

_____

Telephone Number: _____

Responsibilities of Contractor: _____

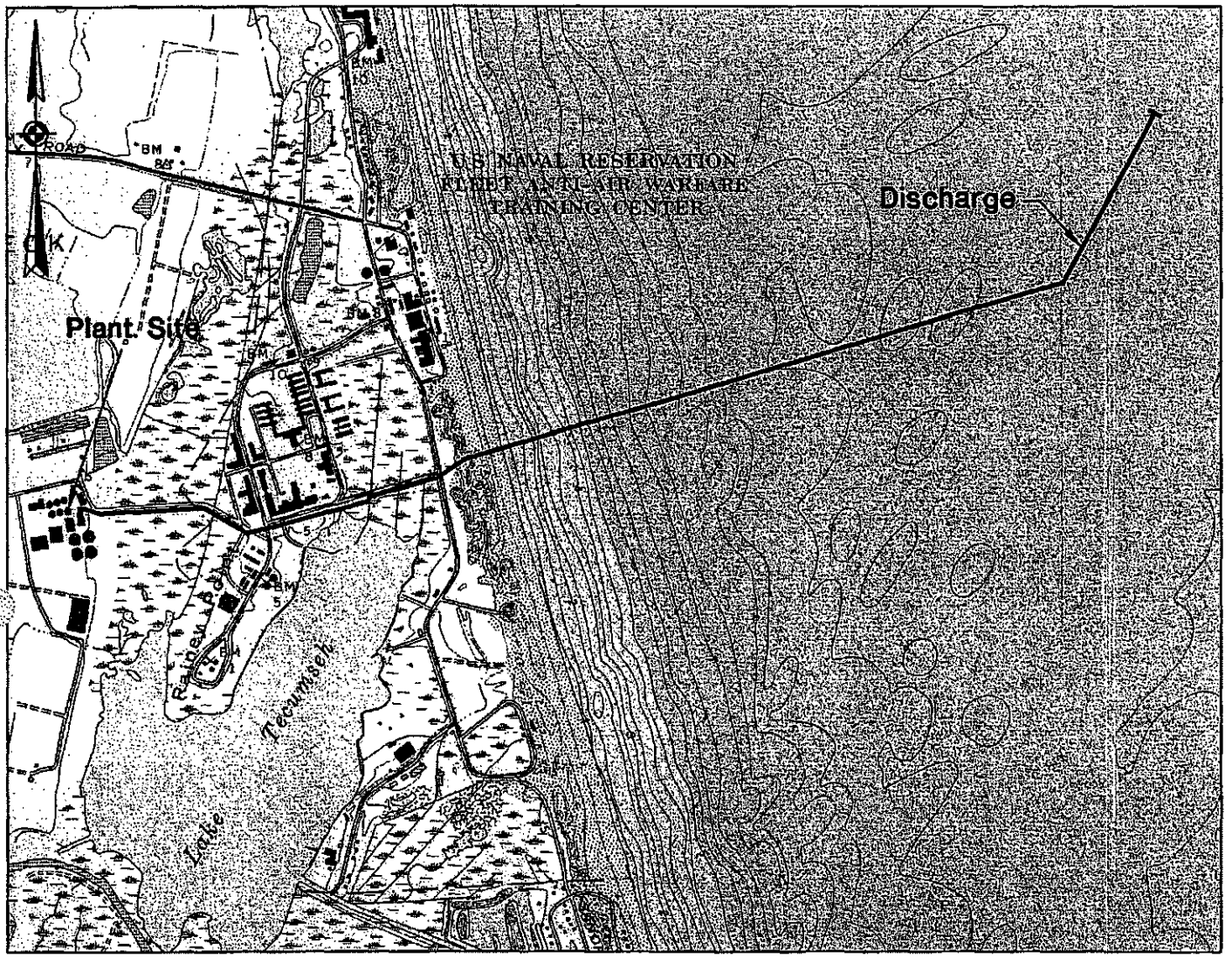
**B.5. Scheduled Improvements and Schedules of Implementation.** Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

NA

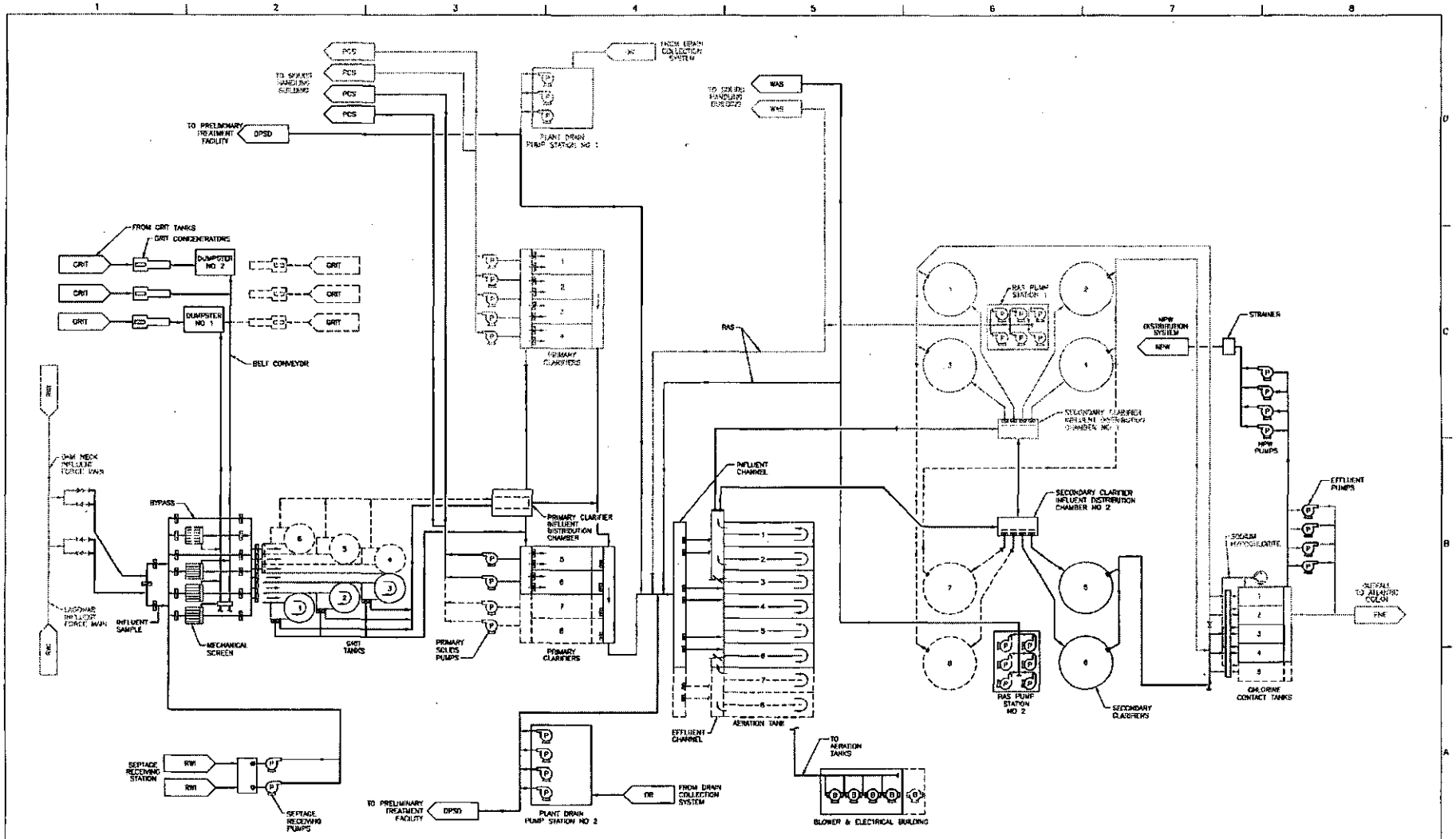
b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

____Yes ____No




**Location Map**
**for**
**Atlantic TP**

June 2003 | Scale: 1"=2000' | USGS Map Reference




HDR

| ISSUE | DATE | DESCRIPTION |
|---|---|---|
| C | 3/07 | ISSUED FOR CONSTRUCTION |
| A | 11/06 | ISSUED FOR BID |

| | |
|---|---|
| PROJECT MANAGER | W. M'COY |
| DESIGNED BY | G. JACOBS |
| DRAWN BY | K. QUATTLEBAUM |
| CHECKED BY | |
| PROJECT NUMBER | 21766 |

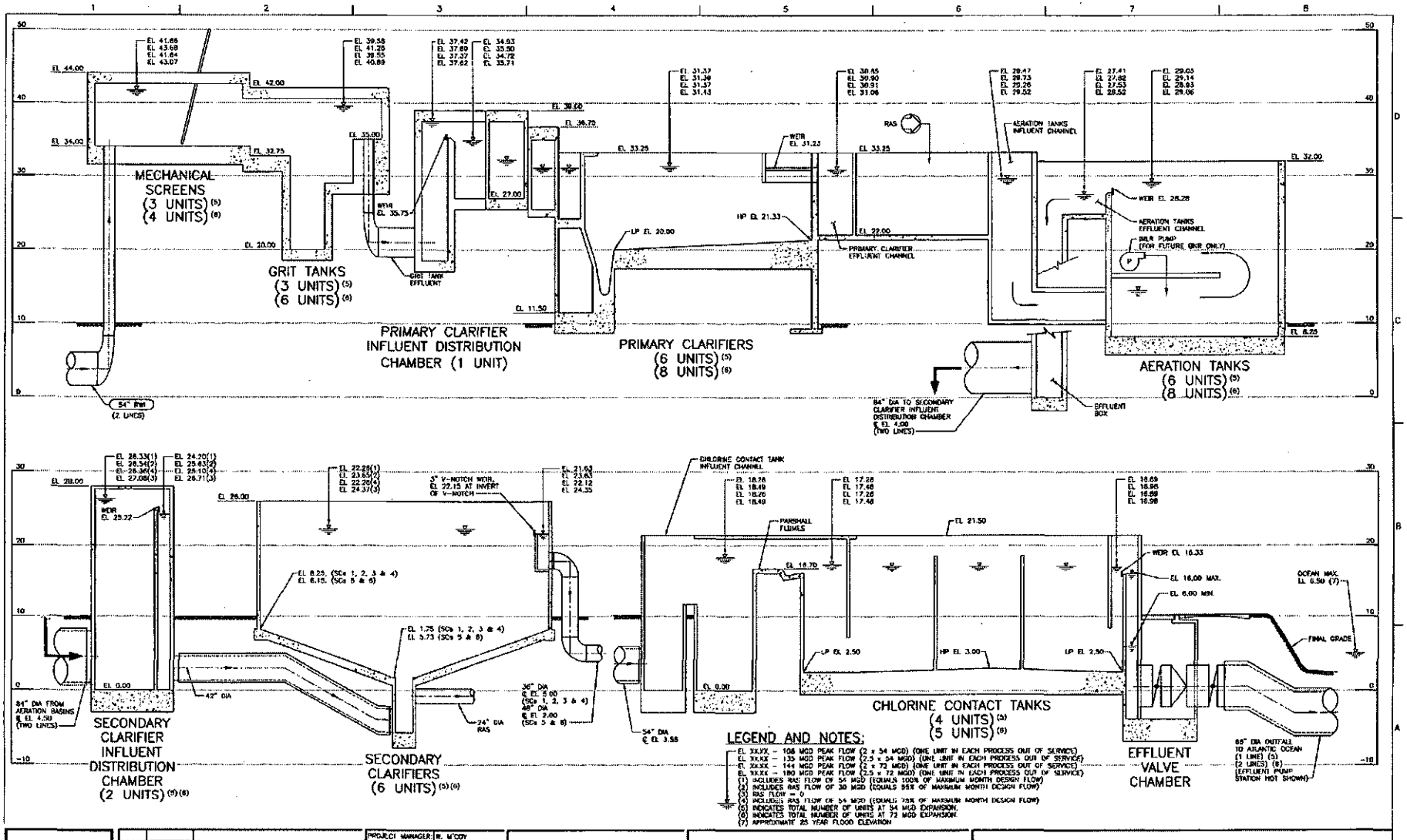
COMMONWEALTH OF VIRGINIA
WILLIAM G. M'COY
Cert. No. 014976
3/23/07
PROFESSIONAL ENGINEER

**HAMPTON ROADS SANITATION DISTRICT**
**VIRGINIA BEACH, VIRGINIA**

**ATLANTIC TREATMENT PLANT**
**EXPANSION PHASE I, CONTRACT C**

**PROCESS FLOW DIAGRAM 1**

| | |
|---|---|
| FILENAME | 06G-11.DWG |
| SCALE | NOT TO SCALE |
| DRAWING NUMBER | G-11 |
| SHEET | 11 OF 825 |




**LEGEND AND NOTES:**

- EL XX.XX – 108 MGD PEAK FLOW (2 x 54 MGD) (ONE UNIT IN EACH PROCESS OUT OF SERVICE)
- EL XX.XX – 135 MGD PEAK FLOW (2.5 x 54 MGD) (ONE UNIT IN EACH PROCESS OUT OF SERVICE)
- EL XX.XX – 144 MGD PEAK FLOW (2 x 72 MGD) (ONE UNIT IN EACH PROCESS OUT OF SERVICE)
- EL XX.XX – 180 MGD PEAK FLOW (2.5 x 72 MGD) (ONE UNIT IN EACH PROCESS OUT OF SERVICE)
- (1) INCLUDES RAS FLOW OF 54 MGD (EQUALS 100% OF MAXIMUM MONTH DESIGN FLOW)
- (2) INCLUDES RAS FLOW OF 30 MGD (EQUALS 55% OF MAXIMUM MONTH DESIGN FLOW)
- (3) RAS FLOW = 0
- (4) INCLUDES RAS FLOW OF 54 MGD (EQUALS 75% OF MAXIMUM MONTH DESIGN FLOW)
- (5) INDICATES TOTAL NUMBER OF UNITS AT 54 MGD EXPANSION
- (6) INDICATES TOTAL NUMBER OF UNITS AT 72 MGD EXPANSION
- (7) APPROXIMATE 25 YEAR FLOOD ELEVATION

HDR

| ISSUE | DATE | DESCRIPTION |
|---|---|---|
| C | 3/07 | ISSUED FOR CONSTRUCTION |
| A | 11/06 | ISSUED FOR BID |

PROJECT MANAGER: W. MCCOY
DESIGNED BY: G.JACOBS/M.BENCHICH
DRAWN BY: K. CHATTLEBAUM
CHECKED BY:
PROJECT NUMBER: 21788

COMMONWEALTH OF VIRGINIA — WILLIAM B. MCCOY — Cert No. 018918 — 3/29/07

**HAMPTON ROADS SANITATION DISTRICT**
**VIRGINIA BEACH, VIRGINIA**

**ATLANTIC TREATMENT PLANT**
**EXPANSION PHASE I, CONTRACT C**

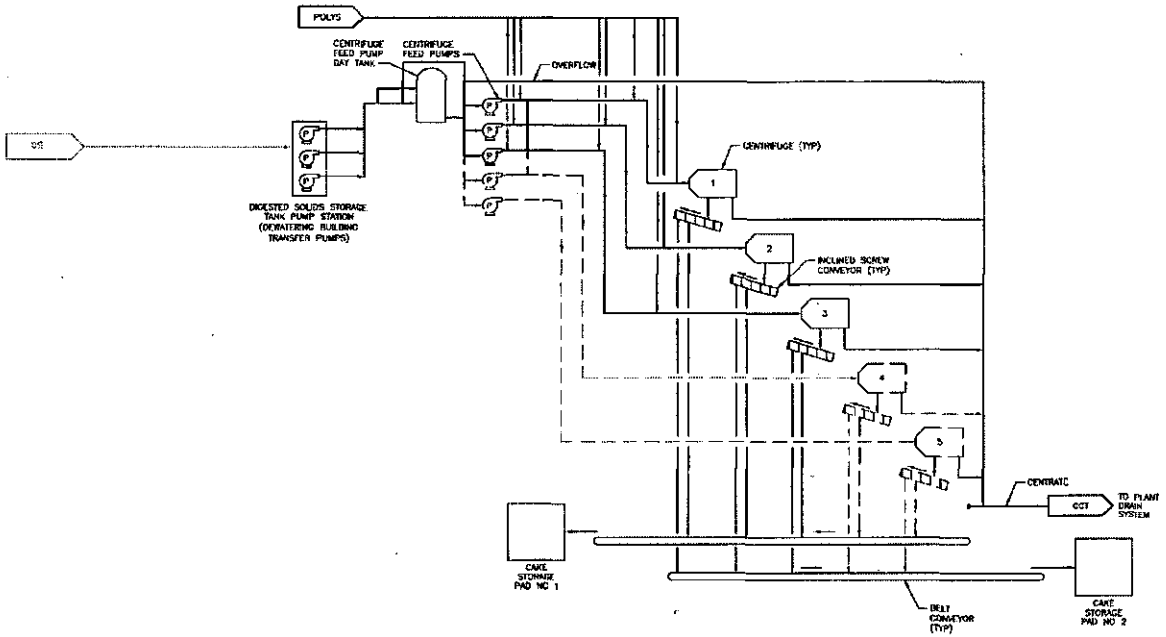
**HYDRAULIC PROFILE**

0 1" 2"

FILENAME: 000-14.DWG
SCALE: VERT: 1"=5', HORIZ: NTS

DRAWING NUMBER: G-14

SHEET 14 OF 825




| ISSUE | DATE | DESCRIPTION |
|---|---|---|
| C | 3/07 | ISSUED FOR CONSTRUCTION |
| A | 11/06 | ISSUED FOR BID |

PROJECT MANAGER: W. McCOY
DESIGNED BY: A. RODRIGUEZ
DRAWN BY: T. VAUGHAN
CHECKED BY:
PROJECT NUMBER: 21765

HDR Engineering, Inc. 5700 Lake Wright Dr. Suite 300 Norfolk, VA 23502

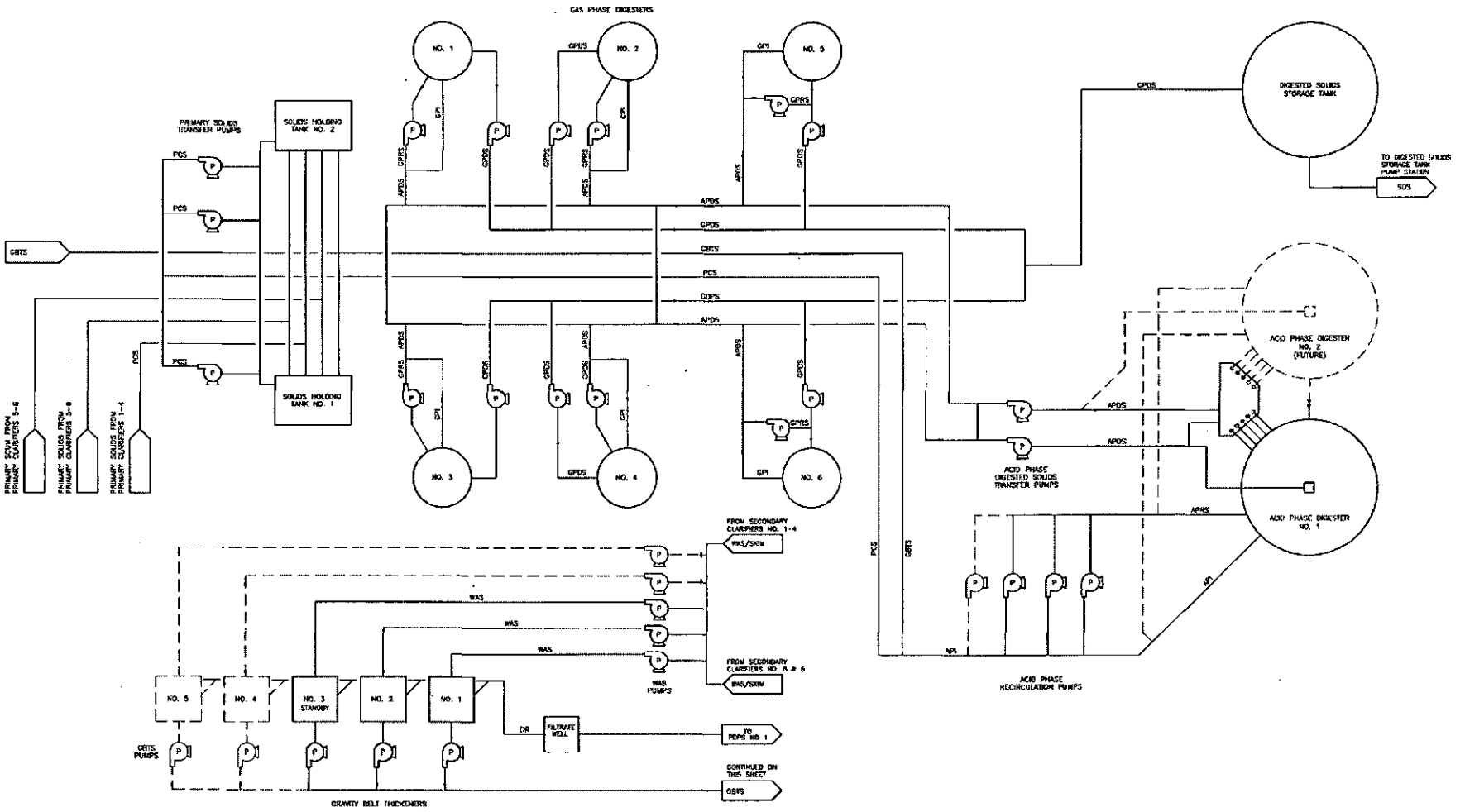
COMMONWEALTH OF VIRGINIA — WILLIAM S. McCOY — Cert. No. 014918 — 3/23/07 — PROFESSIONAL ENGINEER

**HAMPTON ROADS SANITATION DISTRICT**
**VIRGINIA BEACH, VIRGINIA**

**ATLANTIC TREATMENT PLANT**
**EXPANSION PHASE I, CONTRACT C**

**PROCESS FLOW DIAGRAM 3**

FILENAME: 03G-13.DWG
SCALE: NOT TO SCALE
DRAWING NUMBER: G-13
SHEET 13 OF 825




HDR

HDR Engineering, Inc.
5700 Lake Wright Dr.
Suite 300
Norfolk, VA 23502

| ISSUE | DATE | DESCRIPTION |
|---|---|---|
| C | 3/07 | ISSUED FOR CONSTRUCTION |
| A | 11/06 | ISSUED FOR BID |

| | |
|---|---|
| PROJECT MANAGER | W. MOON |
| DESIGNED BY | E. DAVISON |
| DRAWN BY | M. LINHOUS |
| CHECKED BY | |
| PROJECT NUMBER | 21746 |

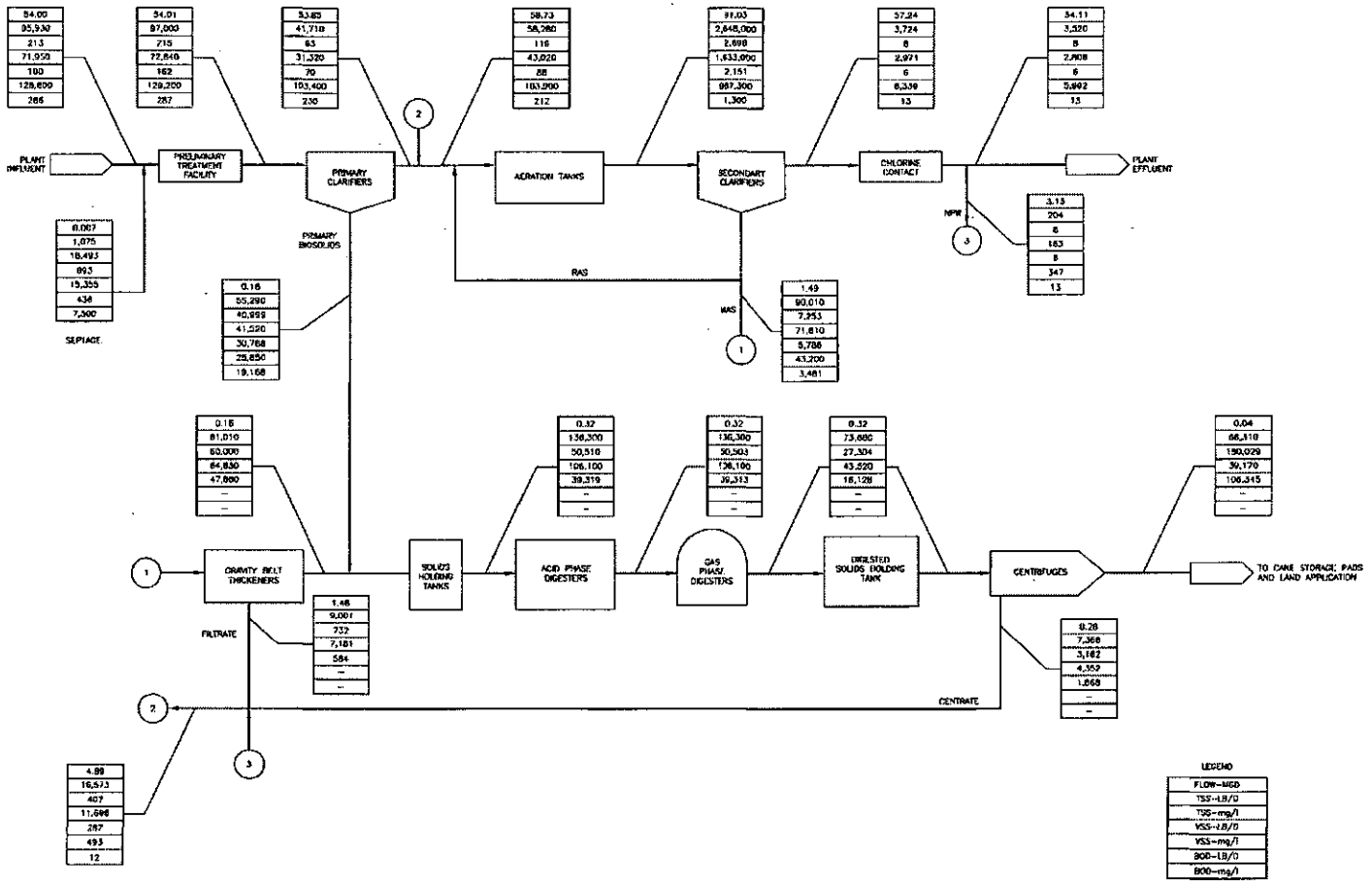
COMMONWEALTH OF VIRGINIA
WILLIAM S. MOON
Cert. No. 019916
3/23/07
REGISTERED ENGINEER

**HAMPTON ROADS SANITATION DISTRICT**
**VIRGINIA BEACH, VIRGINIA**

**ATLANTIC TREATMENT PLANT**
**EXPANSION PHASE I, CONTRACT C**

**PROCESS FLOW DIAGRAM 2**

| | |
|---|---|
| FILENAME | 900-12.DWG |
| SCALE | NOT TO SCALE |
| DRAWING NUMBER | G-12 |
| SHEET | 12 OF 825 |




HDR

| ISSUE | DATE | DESCRIPTION |
|---|---|---|
| C | 3/07 | ISSUED FOR CONSTRUCTION |
| A | 11/06 | ISSUED FOR BID |

PROJECT MANAGER: W. M'COY
DESIGNED BY: C. JACOBS
DRAWN BY: K. CIATTI/EBAUM
CHECKED BY:
PROJECT NUMBER: 21766

COMMONWEALTH OF VIRGINIA
WILLIAM B. MCCOY
Cert. No. 010818
3/23/07

**HAMPTON ROADS SANITATION DISTRICT**
**VIRGINIA BEACH, VIRGINIA**

**ATLANTIC TREATMENT PLANT**
**EXPANSION PHASE I, CONTRACT C**

# PROCESS MASS BALANCE DIAGRAM

FILENAME: 00C-15.DWG
SCALE: NOT TO SCALE
DRAWING NUMBER: G-15
SHEET 15 OF 825

c If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

_____

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

| Implementation Stage | Schedule MM / DD / YYYY | Actual Completion MM / DD / YYYY |
|---|---|---|
| – Begin construction | ___/___/____ | ___/___/____ |
| – End construction | ___/___/____ | ___/___/____ |
| – Begin discharge | ___/___/____ | ___/___/____ |
| – Attain operational level | ___/___/____ | ___/___/____ |

e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? ____Yes ____No

Describe briefly: _____

_____

**B.6. EFFLUENT TESTING DATA (GREATER THAN O.1 MGD ONLY).**

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | AVERAGE DAILY DISCHARGE | | | ANALYTICAL METHOD | ~~ML / MDL~~ Report Limit |
|---|---|---|---|---|---|---|---|
| | Conc. | Units | Conc. | Units | Number of Samples | | |
| **CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.** | | | | | | | |
| AMMONIA (as N) | 42.2 | mg/l | 36.8 | mg/l | 10 | EPA350.1 | 0.20 |
| CHLORINE (TOTAL RESIDUAL, TRC) | 3.48 | mg/l | 1.52 | mg/l | 4385 | SM4500 Cl G | 0.10 |
| DISSOLVED OXYGEN | 7.1 | mg/l | 6.6 | mg/l | 3 | YSI | 0.1 |
| TOTAL KJELDAHL NITROGEN (TKN) | 39.8 | mg/l | 38.5 | mg/l | 3 | EPA 351.2 | 0.50 |
| NITRATE PLUS NITRITE NITROGEN | 3.49 | mg/l | 1.65 | mg/l | 3 | EPA 353.2 | 0.20 |
| OIL and GREASE | <10.0 | mg/l | <RL | mg/l | 3 | EPA 1664A | 5.0 & 10.0* |
| PHOSPHORUS (Total) | 2.26 | mg/l | 1.00 | mg/l | 3 | EPA 365.1 | 0.20 |
| TOTAL DISSOLVED SOLIDS (TDS) | 366 | mg/l | 356 | mg/l | 3 | SM 2540 C | 1 |
| OTHER | | | | | | | |

**END OF PART B.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

Report Limit (RL) is the lowest concentration at which quantitation is demonstrated.

*One O & G sample was reported at <10.0 mg/l. The other two O & G data values were <5.0 mg/l.

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

# BASIC APPLICATION INFORMATION

## PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

**Indicate which parts of Form 2A you have completed and are submitting:**

✓ Basic Application Information packet

Supplemental Application Information packet:

✓ Part D (Expanded Effluent Testing Data)

✓ Part E (Toxicity Testing: Biomonitoring Data)

✓ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

____ Part G (Combined Sewer Systems)

**ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title: Edward G. Henifin, P.E.

Signature: 

Telephone number: (757) 460-4242

Date signed: 6/6/2011

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

**SEND COMPLETED FORMS TO:**

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

# SUPPLEMENTAL APPLICATION INFORMATION

## PART D. EXPANDED EFFLUENT TESTING DATA

**Refer to the directions on the cover page to determine whether this section applies to the treatment works.**

**Effluent Testing: 1.0 mgd and Pretreatment Treatment Works.** If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ~~MLL~~ MDL Report Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | | |
| **METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.** | | | | | | | | | | | | |
| ANTIMONY | dissolved | <80 | ug/l | | | <80 | ug/l | | | 3 | EPA 200.7 | 80 |
| ARSENIC | dissolved | <60 | ug/l | | | <60 | ug/l | | | 3 | EPA 200.7 | 60 |
| BERYLLIUM | dissolved | <2 | ug/l | | | <2 | ug/l | | | 3 | EPA 200.8 | 2 |
| CADMIUM | dissolved | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 200.7 | 5 |
| CHROMIUM | dissolved | <10 | ug/l | | | <10 | ug/l | | | 3 | EPA 200.7 | 2 & 10* |
| COPPER | dissolved | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 200.7 | 5 |
| LEAD | dissolved | <20 | ug/l | | | <20 | ug/l | | | 3 | EPA 200.7 | 20 |
| MERCURY | dissolved | <0.1 | ug/l | | | <0.1 | ug/l | | | 3 | EPA 245.1 | 0.1 |
| NICKEL | dissolved | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 200.8 | 5 |
| SELENIUM | dissolved | <5 | ug/l | | | <5 | ug/l | | | 3 | EPA 200.8 | 5 |
| SILVER | dissolved | <2 | ug/l | | | <2 | ug/l | | | 3 | EPA 200.8 | 2 |
| THALLIUM | dissolved | <40 | ug/l | | | <40 | ug/l | | | 3 | EPA 200.7 | 40 |
| ZINC | dissolved | <15 | ug/l | | | <15 | ug/l | | | 3 | EPA 200.7 | 15 |
| CYANIDE | total | 14 | ug/l | | | 5 | ug/l | | | 3 | EPA 335.4 | 10 |
| TOTAL PHENOLIC COMPOUNDS | | <50 | ug/l | | | <50 | ug/l | | | 3 | EPA 420.4 | 50 |
| HARDNESS (AS $CaCO_3$) | | 80.9 | CaCO3/l | | | 78.8 | CaCO3/l | | | 3 | SM 2340B | 0.2 |
| Use this space (or a separate sheet) to provide information on other metals requested by the permit writer. | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Report Limit is lowest concentration at which quantitation is demonstrated.



*One Chromium sample was reported as <2 ug/l. Two samples were reported as <10 ug/l.

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ~~ML/~~ MDL Report Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | | |
| **VOLATILE ORGANIC COMPOUNDS.** | | | | | | | | | | | |
| ACROLEIN | <50.0 | ug/l | | | <50.0 | ug/l | | | 3 | EPA 624 | 10.0 & 50.0* |
| ACRYLONITRILE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| BENZENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| BROMOFORM | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| CARBON TETRACHLORIDE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| CLOROBENZENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| CHLORODIBROMO-METHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| CHLOROETHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 2-CHLORO-ETHYLVINYL ETHER | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| CHLOROFORM | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| DICHLOROBROMO-METHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,1-DICHLOROETHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,2-DICHLOROETHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| TRANS-1,2-DICHLORO-ETHYLENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,1-DICHLOROETHYLENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,2-DICHLOROPROPANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,3-DICHLORO-PROPYLENE | <20.0 | ug/l | | | <20.0 | ug/l | | | 3 | EPA 624 | 20.0 |
| ETHYLBENZENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| METHYL BROMIDE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| METHYL CHLORIDE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| METHYLENE CHLORIDE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,1,2,2-TETRACHLORO-ETHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| TETRACHLORO-ETHYLENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| TOLUENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |

Report Limit is lowest concentration at which quantitation is demonstrated.



*One Acrolein sample was reported as <10 ug/l. Two samples reported as <50 ug/l.

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ~~MDL~~ Report Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc | Units | Mass | Units | Number of Samples | | |
| 1,1,1-TRICHLOROETHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,1,2-TRICHLOROETHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| TRICHLORETHYLENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| VINYL CHLORIDE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| Use this space (or a separate sheet) to provide information on other volatile organic compounds requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |
| **ACID-EXTRACTABLE COMPOUNDS** | | | | | | | | | | | |
| P-CHLORO-M-CRESOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2-CHLOROPHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2,4-DICHLOROPHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2,4-DIMETHYLPHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 4,6-DINITRO-O-CRESOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2,4-DINITROPHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2-NITROPHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 4-NITROPHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| PENTACHLOROPHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| PHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2,4,6-TRICHLOROPHENOL | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| Use this space (or a separate sheet) to provide information on other acid-extractable compounds requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |
| **BASE-NEUTRAL COMPOUNDS.** | | | | | | | | | | | |
| ACENAPHTHENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| ACENAPHTHYLENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| ANTHRACENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BENZIDINE | <2.00 | ug/l | | | <2.00 | ug/l | | | 3 | EPA 625 | 2.00 |
| BENZO(A)ANTHRACENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BENZO(A)PYRENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |



Report Limit is lowest concentration at which quantitation is demonstrated.

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | ANALYTICAL METHOD | ~~MDL~~ MDL Report Limit |
| 3,4 BENZO-FLUORANTHENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BENZO(GHI)PERYLENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BENZO(K)FLUORANTHENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BIS (2-CHLOROETHOXY) METHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BIS (2-CHLOROETHYL)-ETHER | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BIS (2-CHLOROISO-PROPYL) ETHER | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BIS (2-ETHYLHEXYL) PHTHALATE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 4-BROMOPHENYL PHENYL ETHER | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| BUTYL BENZYL PHTHALATE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2-CHLORONAPHTHALENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 4-CHLORPHENYL PHENYL ETHER | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| CHRYSENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| DI-N-BUTYL PHTHALATE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| DI-N-OCTYL PHTHALATE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| DIBENZO(A,H) ANTHRACENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 1,2-DICHLOROBENZENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,3-DICHLOROBENZENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 1,4-DICHLOROBENZENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 624 | 10.0 |
| 3,3-DICHLOROBENZIDINE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| DIETHYL PHTHALATE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| DIMETHYL PHTHALATE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2,4-DINITROTOLUENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 2,6-DINITROTOLUENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 1,2-DIPHENYLHYDRAZINE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |



Report Limit is lowest concentration at which quantitation is demonstrated.

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ~~MDL~~ MDL Report Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | | |
| FLUORANTHENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| FLUORENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| HEXACHLOROBENZENE | <2.00 | ug/l | | | <2.00 | ug/l | | | 3 | EPA 625 | 2.00 |
| HEXACHLOROBUTADIENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| HEXACHLOROCYCLO-PENTADIENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| HEXACHLOROETHANE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| INDENO(1,2,3-CD)PYRENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| ISOPHORONE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| NAPHTHALENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| NITROBENZENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| N-NITROSODI-N-PROPYLAMINE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| N-NITROSODI- METHYLAMINE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| N-NITROSODI-PHENYLAMINE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| PHENANTHRENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| PYRENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| 1,2,4-TRICHLOROBENZENE | <10.0 | ug/l | | | <10.0 | ug/l | | | 3 | EPA 625 | 10.0 |
| Use this space (or a separate sheet) to provide information on other base-neutral compounds requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |
| Use this space (or a separate sheet) to provide information on other pollutants (e.g., pesticides) requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |

**END OF PART D.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**



Report Limit is lowest concentration at which quantitation is demonstrated.

# SUPPLEMENTAL APPLICATION INFORMATION

## PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points. 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

**E.1. Required Tests.**

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

____chronic 8 acute

**E.2. Individual Test Data.** Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

| | Test number:_____ | Test number:_____ | Test number:_____ |
|---|---|---|---|
| a. Test information. | | | |
| Test species & test method number | | | |
| Age at initiation of test | | | |
| Outfall number | | | |
| Dates sample collected | | | |
| Date test started | | | |
| Duration | | | |
| b. Give toxicity test methods followed. | | | |
| Manual title | | | |
| Edition number and year of publication | | | |
| Page number(s) | | | |
| c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used. | | | |
| 24-Hour composite | | | |
| Grab | | | |
| d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each) | | | |
| Before disinfection | | | |
| After disinfection | | | |
| After dechlorination | | | |

| | Test number:_____ | Test number:_____ | Test number:_____ |
|---|---|---|---|
| e. Describe the point in the treatment process at which the sample was collected. | | | |
| Sample was collected: | | | |
| f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both. | | | |
| Chronic toxicity | | | |
| Acute toxicity | | | |
| g. Provide the type of test performed. | | | |
| Static | | | |
| Static-renewal | | | |
| Flow-through | | | |
| h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source. | | | |
| Laboratory water | | | |
| Receiving water | | | |
| i. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used. | | | |
| Fresh water | | | |
| Salt water | | | |
| j. Give the percentage effluent used for all concentrations in the test series. | | | |
| [redacted] | | | |
| [redacted] | | | |
| [redacted] | | | |
| k. Parameters measured during the test. (State whether parameter meets test method specifications) | | | |
| pH | | | |
| Salinity | | | |
| Temperature | | | |
| Ammonia | | | |
| Dissolved oxygen | | | |
| l. Test Results. | | | |
| Acute: | | | |
| Percent survival in 100% effluent | % | % | % |
| $LC_{50}$ | | | |
| 95% C.I. | % | % | % |
| Control percent survival | % | % | % |
| Other (describe) | | | |

| Chronic: | | | |
|---|---|---|---|
| NOEC | % | % | % |
| $IC_{25}$ | % | % | % |
| Control percent survival | % | % | % |
| Other (describe) | | | |

m. Quality Control/Quality Assurance.

| | | | |
|---|---|---|---|
| Is reference toxicant data available? | | | |
| Was reference toxicant test within acceptable bounds? | | | |
| What date was reference toxicant test run (MM/DD/YYYY)? | | | |
| Other (describe) | | | |

**E.3. Toxicity Reduction Evaluation.** Is the treatment works involved in a Toxicity Reduction Evaluation?

____Yes ✓ No If yes, describe: _____

**E.4. Summary of Submitted Biomonitoring Test Information.** If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

9/21/2007, 5/27/2008, 4/10/2009, 10/7/2010

Date submitted: _____ (MM/DD/YYYY)

Summary of results: (see instructions)

All tests met the water quality based decision criterion of acute LC50>3% effluent. See attachment #1 for more information.

**END OF PART E.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.**

**FACILITY NAME AND PERMIT NUMBER:**
Atlantic STP VA0081248

*Form Approved 1/14/99*
*OMB Number 2040-0086*

# SUPPLEMENTAL APPLICATION INFORMATION

## PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

**All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.**

### GENERAL INFORMATION:

**F.1. Pretreatment Program.** Does the treatment works have, or is it subject to, an approved pretreatment program?

✓ Yes ___ No

**F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs).** Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. 3

b. Number of CIUs. 1

### SIGNIFICANT INDUSTRIAL USER INFORMATION:

**Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.**

**F.3. Significant Industrial User Information.** Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Controls Corporation of America

Mailing Address: 1501 Harpers Road Virginia Beach, VA 23454

**F.4. Industrial Processes.** Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Manufacturer of welding products and metal working machinery

**F.5. Principal Product(s) and Raw Material(s).** Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Welding equipment, torches, regulators, flow meters

Raw material(s): Copper, brass, aluminum, stainless steel

**F.6. Flow Rate.**

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

8700 gpd (___ continuous or ✓ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2000 gpd (___ continuous or ✓ intermittent)

**F.7. Pretreatment Standards.** Indicate whether the SIU is subject to the following:

a. Local limits ✓ Yes ___ No

b. Categorical pretreatment standards ✓ Yes ___ No

If subject to categorical pretreatment standards, which category and subcategory?

Metal Finishing

**F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU.** Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes ✓ No If yes, describe each episode.

## RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

**F.9. RCRA Waste.** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ✓ No (go to F.12.)

**F.10. Waste Transport.** Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

**F.11. Waste Description.** Give EPA hazardous waste number and amount (volume or mass, specify units).

| EPA Hazardous Waste Number | Amount | Units |
|---|---|---|
| | | |
| | | |
| | | |

## CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

**F.12. Remediation Waste.** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ✓ No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

**F.13. Waste Origin.** Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

**F.14. Pollutants.** List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

**F.15. Waste Treatment.**

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

**END OF PART F.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

# SUPPLEMENTAL APPLICATION INFORMATION

## PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

**All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.**

### GENERAL INFORMATION:

**F.1. Pretreatment Program.** Does the treatment works have, or is it subject to, an approved pretreatment program?

✓ Yes ___ No

**F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs).** Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. 3

b. Number of CIUs. 1

### SIGNIFICANT INDUSTRIAL USER INFORMATION:

**Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.**

**F.3. Significant Industrial User Information.** Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Department of the Navy, Naval Air Station Oceana

Mailing Address: Virginia Beach, VA 23460

**F.4. Industrial Processes.** Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Air Support Training Center

**F.5. Principal Product(s) and Raw Material(s).** Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): None

Raw material(s): None

**F.6. Flow Rate.**

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

69,000 gpd (✓ continuous or ___ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

216,000 gpd (✓ continuous or ___ intermittent)

**F.7. Pretreatment Standards.** Indicate whether the SIU is subject to the following:

a. Local limits ✓ Yes ___ No

b. Categorical pretreatment standards ___ Yes ✓ No

If subject to categorical pretreatment standards, which category and subcategory?

**F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU.** Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes ✓ No If yes, describe each episode.

## RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

**F.9. RCRA Waste.** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ✓ No (go to F.12.)

**F.10. Waste Transport.** Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

**F.11. Waste Description.** Give EPA hazardous waste number and amount (volume or mass, specify units).

| EPA Hazardous Waste Number | Amount | Units |
|---|---|---|
| | | |
| | | |
| | | |

## CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

**F.12. Remediation Waste.** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ✓ No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

**F.13. Waste Origin.** Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

**F.14. Pollutants.** List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

**F.15. Waste Treatment.**

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

**END OF PART F.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

# SUPPLEMENTAL APPLICATION INFORMATION

## PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

**All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.**

### GENERAL INFORMATION:

**F.1. Pretreatment Program.** Does the treatment works have, or is it subject to, an approved pretreatment program?

✓ Yes ___ No

**F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs).** Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. 3

b. Number of CIUs. 1

### SIGNIFICANT INDUSTRIAL USER INFORMATION:

**Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.**

**F.3. Significant Industrial User Information.** Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: City of Virginia Beach, Landfill #2

Mailing Address: 1989 Jake Sears Road
Virginia Beach, VA 23464

**F.4. Industrial Processes.** Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Municipal Landfill Leachate

**F.5. Principal Product(s) and Raw Material(s).** Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): None

Raw material(s): None

**F.6. Flow Rate.**

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

93,000 gpd (___ continuous or ✓ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (___ continuous or ✓ intermittent)

**F.7. Pretreatment Standards.** Indicate whether the SIU is subject to the following:

a. Local limits ✓ Yes ___ No

b. Categorical pretreatment standards ___ Yes ✓ No

If subject to categorical pretreatment standards, which category and subcategory?

**F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU.** Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes ✓ No If yes, describe each episode.

## RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

**F.9. RCRA Waste.** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ✓ No (go to F.12.)

**F.10. Waste Transport.** Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

**F.11. Waste Description.** Give EPA hazardous waste number and amount (volume or mass, specify units).

| EPA Hazardous Waste Number | Amount | Units |
|---|---|---|
| | | |
| | | |
| | | |

## CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

**F.12. Remediation Waste.** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ✓ No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

**F.13. Waste Origin.** Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

**F.14. Pollutants.** List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

**F.15. Waste Treatment.**

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

**END OF PART F.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

# SUPPLEMENTAL APPLICATION INFORMATION

## PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

**All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.**

### GENERAL INFORMATION:

**F.1. Pretreatment Program.** Does the treatment works have, or is it subject to, an approved pretreatment program?

✓ Yes ___ No

**F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs).** Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. 3

b. Number of CIUs. 1

### SIGNIFICANT INDUSTRIAL USER INFORMATION:

**Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.**

**F.3. Significant Industrial User Information.** Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: YUPO Corporation America

Mailing Address: 800 Yupo Court
Chesapeake, VA 23320

**F.4. Industrial Processes.** Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Synthetic paper manufacturing

**F.5. Principal Product(s) and Raw Material(s).** Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Synthetic Paper

Raw material(s): Polypropylene pellets, modified Polyethyleneimine

**F.6. Flow Rate.**

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

32,000 gpd (✓ continuous or ___ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2,000 gpd (✓ continuous or ___ intermittent)

**F.7. Pretreatment Standards.** Indicate whether the SIU is subject to the following:

a. Local limits ✓ Yes ___ No

b. Categorical pretreatment standards ___ Yes ✓ No

If subject to categorical pretreatment standards, which category and subcategory?

**F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU.** Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes ✓ No If yes, describe each episode.

## RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

**F.9. RCRA Waste.** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ✓ No (go to F.12.)

**F.10. Waste Transport.** Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

**F.11. Waste Description.** Give EPA hazardous waste number and amount (volume or mass, specify units).

| EPA Hazardous Waste Number | Amount | Units |
|---|---|---|
| | | |
| | | |
| | | |

## CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

**F.12. Remediation Waste.** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ✓ No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

**F.13. Waste Origin.** Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

**F.14. Pollutants.** List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

**F.15. Waste Treatment.**

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

**END OF PART F.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

# SUPPLEMENTAL APPLICATION INFORMATION

## PART G. COMBINED SEWER SYSTEMS

**If the treatment works has a combined sewer system, complete Part G.**

**G.1. System Map.** Provide a map indicating the following: (may be included with Basic Application Information)

a. All CSO discharge points.

b. Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).

c. Waters that support threatened and endangered species potentially affected by CSOs.

**G.2. System Diagram.** Provide a diagram, either in the map provided in G.1. or on a separate drawing, of the combined sewer collection system that includes the following information:

a. Locations of major sewer trunk lines, both combined and separate sanitary.

b. Locations of points where separate sanitary sewers feed into the combined sewer system.

c. Locations of in-line and off-line storage structures.

d. Locations of flow-regulating devices.

e. Locations of pump stations.

### CSO OUTFALLS:

**Complete questions G.3 through G.6 once for each CSO discharge point.**

**G.3. Description of Outfall.**

a. Outfall number _____

b. Location

_____
(City or town, if applicable) (Zip Code)

_____
(County) (State)

_____
(Latitude) (Longitude)

c. Distance from shore (if applicable) _____ ft.

d. Depth below surface (if applicable) _____ ft.

e. Which of the following were monitored during the last year for this CSO?

____Rainfall ____CSO pollutant concentrations ____CSO frequency

____CSO flow volume ____Receiving water quality

f. How many storm events were monitored during the last year? _____

**G.4. CSO Events.**

a. Give the number of CSO events in the last year.

_____ events (___ actual or ___ approx.)

b. Give the average duration per CSO event.

_____ hours (____ actual or ____ approx.)

c. Give the average volume per CSO event.

_____ million gallons (_____ actual or _____ approx.)

d. Give the minimum rainfall that caused a CSO event in the last year.

_____ inches of rainfall

**G.5. Description of Receiving Waters.**

a. Name of receiving water: _____

b. Name of watershed/river/stream system: _____

United States Soil Conservation Service 14-digit watershed code (if known): _____

c. Name of State Management/River Basin: _____

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): _____

**G.6. CSO Operations.**

Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

_____

_____

**END OF PART G.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.**

# VIRGINIA DEQ NO EXPOSURE CERTIFICATION
# FOR EXCLUSION FROM VPDES STORM WATER PERMITTING

Submission of this **No Exposure Certification** constitutes notice that the entity identified below does not require permit authorization for its storm water discharges associated with industrial activity under the VPDES Permit Program due to the existence of a condition of **No Exposure**.

A condition of **No Exposure** exists at an industrial facility when all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. A storm resistant shelter is not required for the following industrial materials and activities:

- drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak. "Sealed" means banded or otherwise secured and without operational taps or valves;
- adequately maintained vehicles used in material handling; and
- final products, other than products that would be mobilized in storm water discharges (e.g., rock salt).

A No Exposure Certification must be provided for each facility qualifying for the No Exposure exclusion. In addition, the exclusion from VPDES permitting is available on a facility-wide basis only, not for individual outfalls. If any industrial activities or materials are or will be exposed to precipitation, the facility is not eligible for the No Exposure exclusion.

By signing and submitting this No Exposure Certification form, the entity below is certifying that a condition of No Exposure exists at its facility or site, and is obligated to comply with the terms and conditions at 9 VAC 25-31-120 E (the VPDES Permit Regulation).

**Please Type or Print All Information. ALL INFORMATION ON THIS FORM MUST BE PROVIDED.**

**1. Facility Operator Information**

Name: Hampton Roads Sanitation District

Mailing Address: 1436 Air Rail Avenue

City: Virginia Beach State: VA Zip: 23455 Phone: 757-460-2261

**2. Facility/Site Location Information**

Facility Name: Atlantic STP

Address: 645 Firefall Drive

City: Virginia Beach State: VA Zip: 23454

County Name: NA

Latitude: 36 46' 15" N Longitude: 75 58' 15" N

**3. Was the facility or site previously covered under a VPDES storm water permit?** Yes ☒ No ☐

If "Yes", enter the VPDES permit number: VA0081248

**4. SIC/Activity Codes:** Primary: 4952 Secondary (if applicable): _____

**5. Total size of facility/site associated with industrial activity:** 48.4 acres

**6. Have you paved or roofed over a formerly exposed pervious area in order to qualify for the No Exposure exclusion?** Yes ☐ No ☒

**If "Yes", please indicate approximately how much area was paved or roofed. Completing this question does not disqualify you for the No Exposure exclusion. However, DEQ may use this information in considering whether storm water discharges from your site are likely to have an adverse impact on water quality, in which case you could be required to obtain permit coverage.**

Less than one acre ☐ One to five acres ☐ More than five acres ☐

**7. Exposure Checklist**

Are any of the following materials or activities exposed to precipitation, now or in the foreseeable future? (Please check either "Yes" or "No" in the appropriate box.) **If you answer "Yes" to any of these questions (1) through (11), you are <u>not</u> eligible for the No Exposure exclusion.**

| | Yes | No |
|---|---|---|
| (1) Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water | ☐ | ☒ |
| (2) Materials or residuals on the ground or in storm water inlets from spill/leaks | ☐ | ☒ |
| (3) Materials or products from past industrial activity | ☐ | ☒ |
| (4) Material handling equipment (except adequately maintained vehicles) | ☐ | ☒ |
| (5) Materials or products during loading/unloading or transporting activities | ☐ | ☒ |
| (6) Materials or products stored outdoors (except final products intended for outside use [e.g., new cars] where exposure to storm water does not result in the discharge of pollutants) | ☐ | ☒ |
| (7) Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers | ☐ | ☒ |
| (8) Materials or products handled/stored on roads or railways owned or maintained by the discharger | ☐ | ☒ |
| (9) Waste material (except waste in covered, non-leaking containers [e.g., dumpsters]) | ☐ | ☒ |
| (10) Application or disposal of process wastewater (unless otherwise permitted) | ☐ | ☒ |
| (11) Particulate matter or visible deposits of residuals from roof stacks and/or vents not otherwise regulated (i.e., under an air quality control permit) and evident in the storm water outflow | ☐ | ☒ |

**8. Certification Statement**

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of no exposure and obtaining an exclusion from VPDES storm water permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility identified in this document (except as allowed under 9 VAC 25-31-120 E 2).

I understand that I am obligated to submit a No Exposure Certification form once every five years to the Department of Environmental Quality and, if requested, to the operator of the local MS4 into which this facility discharges (where applicable). I understand that I must allow the Department, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under a VPDES permit prior to any point source discharge of storm water associated with industrial activity from the facility.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: Edward G. Henifin, P.E.

Print Title: General Manager

Signature: [signature]

Date: 6/6/2011

**For Department of Environmental Quality Use Only**

Accepted/Not Accepted by: [signature] Date: 7/29/11

Please print or type in the unshaded areas only.

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

FORM 2F NPDES

U.S. Environmental Protection Agency
Washington, DC 20460

# Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

**Paperwork Reduction Act Notice**

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information, or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

## I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

| A. Outfall Number (*list*) | B. Latitude | | | C. Longitude | | | D. Receiving Water (*name*) |
|---|---|---|---|---|---|---|---|
| 002 | 36 | 46 | 25 | -75 | 58 | 25 | Lake Tecumseh |
| 003 | 36 | 46 | 23 | -75 | 58 | 17 | Lake Tecumseh |
| 004 | 36 | 46 | 21 | -75 | 58 | 16 | Lake Tecumseh |
| 005 | 36 | 46 | 21 | -75 | 58 | 16 | Lake Tecumseh |
| 006 | 36 | 46 | 20 | -75 | 58 | 16 | Lake Tecumseh |
| 007 | 36 | 46 | 18 | -75 | 58 | 16 | Lake Tecumseh |
| 008 | 36 | 46 | 16 | -75 | 58 | 15 | Lake Tecumseh |
| 009 | 36 | 46 | 14 | -75 | 58 | 15 | Lake Tecumseh |
| 010 | | | | | | | Removed during plant expansion construction |
| | | | | | | | See attached sheet for outfalls 011 - 017 |

## II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

| 1. Identification of Conditions, Agreements, Etc. | 2. Affected Outfalls | | 3. Brief Description of Project | 4. Final Compliance Date | |
|---|---|---|---|---|---|
| | number | source of discharge | | a. req. | b. proj. |
| None | | | | | |
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B: You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

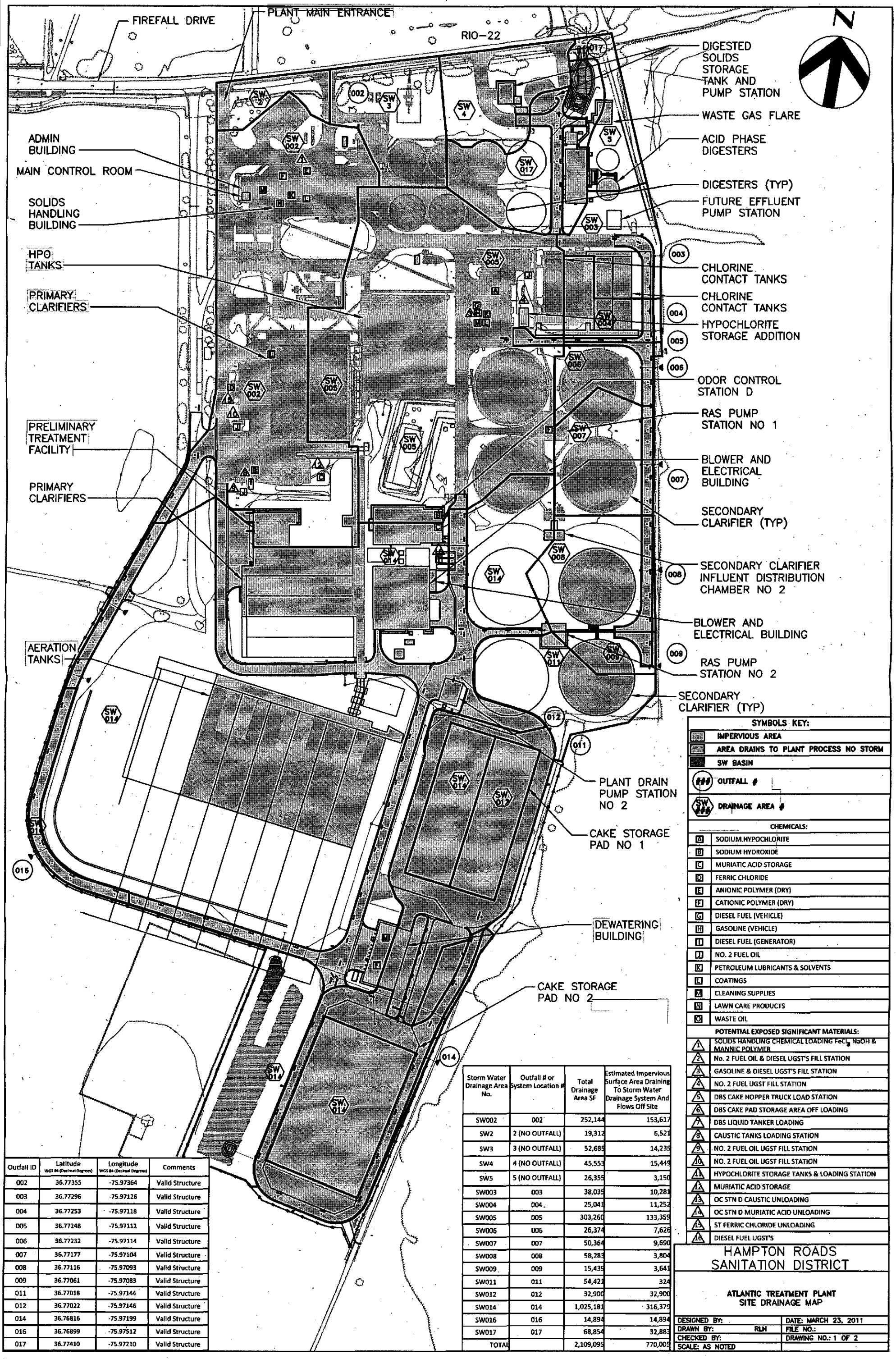
## III. Site Drainage Map

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfalls(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage of disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which received storm water discharges from the facility.

Atlantic STP VA0081248 Storm Water Application Attachment

I. Outfall Location

| Outfall Number | Latitude | | | Longitude | | | Receiving Water |
|---|---|---|---|---|---|---|---|
| 011 | 36 | 46 | 13 | -75 | 58 | 17 | Lake Tecumseh |
| 012 | 36 | 46 | 13 | -75 | 58 | 17 | Lake Tecumseh |
| 013 | | | | | | | Removed during plant expansion construction |
| 014 | 36 | 46 | 5 | -75 | 58 | 19 | Lake Tecumseh |
| 015 | | | | | | | Removed during plant expansion construction |
| 016 | 36 | 46 | 8 | -75 | 58 | 30 | Lake Tecumseh |
| 017 | 36 | 46 | 27 | -75 | 58 | 20 | Lake Tecumseh (new outfall installed during plant expansion construction) |
| | | | | | | | |
| | | | | | | | |




| Outfall ID | Latitude (WGS 84 Decimal Degrees) | Longitude (WGS 84 Decimal Degrees) | Comments |
|---|---|---|---|
| 002 | 36.77355 | -75.97364 | Valid Structure |
| 003 | 36.77296 | -75.97126 | Valid Structure |
| 004 | 36.77253 | -75.97118 | Valid Structure |
| 005 | 36.77248 | -75.97112 | Valid Structure |
| 006 | 36.77232 | -75.97114 | Valid Structure |
| 007 | 36.77177 | -75.97104 | Valid Structure |
| 008 | 36.77116 | -75.97093 | Valid Structure |
| 009 | 36.77061 | -75.97083 | Valid Structure |
| 011 | 36.77018 | -75.97144 | Valid Structure |
| 012 | 36.77022 | -75.97146 | Valid Structure |
| 014 | 36.76816 | -75.97199 | Valid Structure |
| 016 | 36.76899 | -75.97512 | Valid Structure |
| 017 | 36.77410 | -75.97210 | Valid Structure |

| Storm Water Drainage Area No. | Outfall # or System Location # | Total Drainage Area SF | Estimated Impervious Surface Area Draining To Storm Water Drainage System And Flows Off Site |
|---|---|---|---|
| SW002 | 002 | 252,144 | 153,617 |
| SW2 | 2 (NO OUTFALL) | 19,312 | 6,521 |
| SW3 | 3 (NO OUTFALL) | 52,685 | 14,235 |
| SW4 | 4 (NO OUTFALL) | 45,553 | 15,449 |
| SW5 | 5 (NO OUTFALL) | 26,355 | 3,150 |
| SW003 | 003 | 38,035 | 10,281 |
| SW004 | 004 | 25,041 | 11,252 |
| SW005 | 005 | 303,260 | 133,359 |
| SW006 | 006 | 26,374 | 7,626 |
| SW007 | 007 | 50,364 | 9,690 |
| SW008 | 008 | 58,283 | 3,804 |
| SW009 | 009 | 15,439 | 3,641 |
| SW011 | 011 | 54,421 | 324 |
| SW012 | 012 | 32,900 | 32,900 |
| SW014 | 014 | 1,025,181 | 316,379 |
| SW016 | 016 | 14,894 | 14,894 |
| SW017 | 017 | 68,854 | 32,883 |
| TOTAL | | 2,109,095 | 770,005 |

**SYMBOLS KEY:**

- IMPERVIOUS AREA
- AREA DRAINS TO PLANT PROCESS NO STORM
- SW BASIN
- ### OUTFALL #
- SW ### DRAINAGE AREA #

**CHEMICALS:**

| | |
|---|---|
| A | SODIUM HYPOCHLORITE |
| B | SODIUM HYDROXIDE |
| C | MURIATIC ACID STORAGE |
| D | FERRIC CHLORIDE |
| E | ANIONIC POLYMER (DRY) |
| F | CATIONIC POLYMER (DRY) |
| G | DIESEL FUEL (VEHICLE) |
| H | GASOLINE (VEHICLE) |
| I | DIESEL FUEL (GENERATOR) |
| J | NO. 2 FUEL OIL |
| K | PETROLEUM LUBRICANTS & SOLVENTS |
| L | COATINGS |
| M | CLEANING SUPPLIES |
| N | LAWN CARE PRODUCTS |
| O | WASTE OIL |

**POTENTIAL EXPOSED SIGNIFICANT MATERIALS:**

| | |
|---|---|
| 1 | SOLIDS HANDLING CHEMICAL LOADING $FeCl_3$ NaOH & MANNIC POLYMER |
| 2 | No. 2 FUEL OIL & DIESEL UGST'S FILL STATION |
| 3 | GASOLINE & DIESEL UGST'S FILL STATION |
| 4 | NO. 2 FUEL UGST FILL STATION |
| 5 | DBS CAKE HOPPER TRUCK LOAD STATION |
| 6 | DBS CAKE PAD STORAGE AREA OFF LOADING |
| 7 | DBS LIQUID TANKER LOADING |
| 8 | CAUSTIC TANKS LOADING STATION |
| 9 | NO. 2 FUEL OIL UGST FILL STATION |
| 10 | NO. 2 FUEL OIL UGST FILL STATION |
| 11 | HYPOCHLORITE STORAGE TANKS & LOADING STATION |
| 12 | MURIATIC ACID STORAGE |
| 13 | OC STN D CAUSTIC UNLOADING |
| 14 | OC STN D MURIATIC ACID UNLOADING |
| 15 | ST FERRIC CHLORIDE UNLOADING |
| 16 | DIESEL FUEL UGST'S |

# HAMPTON ROADS SANITATION DISTRICT

## ATLANTIC TREATMENT PLANT SITE DRAINAGE MAP

| | |
|---|---|
| DESIGNED BY: | DATE: MARCH 23, 2011 |
| DRAWN BY: RLH | FILE NO.: |
| CHECKED BY: | DRAWING NO.: 1 OF 2 |
| SCALE: AS NOTED | |

Continued from the Front

## IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of imperious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

| Outfall Number | Area of Impervious Surface *(provide units)* | Total Area Drained *(provide units)* | Outfall Number | Area of Impervious Surface *(provide units)* | Total Area Drained *(provide units)* |
|---|---|---|---|---|---|
| | See attached sheet for information | | | | |

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas, and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

Significant materials present on the plant site are managed in accordance with storm water pollution prevention plan. Storage of all materials is accomplished in one of two scenarios:

1. Inside of building having drain systems connected to plant.
2. Outside storage areas having containment areas and sump pumps.

Fuels are contained in double-walled underground storage tanks with release detection systems.

Plant has submitted no exposure certification with this application.

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

| Outfall Number | Treatment | List Codes from Table 2F-1 |
|---|---|---|
| All outfalls | Each drainage area has containment around each potential pollutant material. Good housekeeping procedures are employed at all sites. Biosolids are stored on sheltered concrete pads. | |

## V. Nonstormwater Discharges

A. I certify under penalty of law hat the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharged from these outfall(s) are identified in either an accompanying Form 2C or From 2E application for the outfall.

| Name and Official Title *(type or print)* | Signature | Date Signed |
|---|---|---|
| Edward G. Henifin, General Manager |  | 6/6/2011 |

B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

Careful analysis of accurate schematics and annual visual inspections during dry weather conditions. Periodic inspections of outfalls conducted as outlined in storm water pollution prevention plan.

## VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

March 4, 2009 - 200 gallons of nonpotable water (NPW) soaked into ground and into storm drain
May 4, 2009 - 50 gallons of NPW soaked into ground
June 10, 2009 - 300 gallons of NPW soaked into ground
June 18, 2009- 250 gallons of wastewater soaked into ground
September 15, 2009 - 50 gallons of wastewater soaked into ground
December 8, 2009 - 250 gallons of NPW soaked into ground
January 2, 2010 - 8000 gallons of NPW soaked into ground
January 22, 2010 - 100 gallons of NPW soaked into ground
April 12, 2010 - 200 gallons of wastewater soaked into ground
April 15, 2010 - 1400 gallons of NPW soaked into ground
May 21, 2010 - 200 gallons of NPW soaked into ground
June 17, 2010 - 25 gallons of wastewater soaked into ground
December 21, 2010 - 190 gallons of NPW soaked into ground
January 23, 2011 - 97,600 gallons of NPW into storm drain

Atlantic STP VA0081248 Storm Water Application Attachment

IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

| Outfall Number | Area of Impervious Surface ($ft^2$) | Total Area Drained ($ft^2$) |
|---|---|---|
| 002 | 153,617 | 252,144 |
| 003 | 10,281 | 38,035 |
| 004 | 11,252 | 25,041 |
| 005 | 133,359 | 303,260 |
| 006 | 7,626 | 26,374 |
| 007 | 9,690 | 50,364 |
| 008 | 3,804 | 58,283 |
| 009 | 3,641 | 15,439 |
| 011 | 324 | 54,421 |
| 012 | 32,900 | 32,900 |
| 014 | 316,379 | 1,025,181 |
| 016 | 14,894 | 14,894 |
| 017 | 32,883 | 68,854 |

Continued from Page 2

EPA ID Number *(copy from Item 1 of Form 1)*

## VII. Discharge Information

A, B, C, & D: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided. Table VII-A, VII-B, VII-C are included on separate sheets numbers VII-1 and VII-2.

E. Potential discharges not covered by analysis – is any toxic pollutant listed in table 2F-2, 2F-3, or 2F-4, a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ Yes (*list all such pollutants below*) ☑ No (*go to Section IX*)

## VIII. Biological Toxicity Testing Data

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ Yes (*list all such pollutants below*) ☑ No (*go to Section IX*)

## IX. Contract Analysis Information

Were any of the analyses reported in Item VII performed by a contract laboratory or consulting firm?

☐ Yes (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) ☑ No (*go to Section X*)

| A. Name | B. Address | C. Area Code & Phone No. | D. Pollutants Analyzed |
|---|---|---|---|
| | | | |

## X. Certification

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

| A. Name & Official Title (*Type Or Print*) | B. Area Code and Phone No. |
|---|---|
| Edward G. Henifin, P.E. General Manager | (757) 460-4242 |
| C. Signature | D. Date Signed |
| | 6/6/2011 |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge information *(Continued from page 3 of Form 2F)*** 002

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge information *(Continued from page 3 of Form 2F)*** 003

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

## VII. Discharge Information *(Continued from page 3 of Form 2F)* 004

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge information *(Continued from page 3 of Form 2F)*** 005

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| *Oil and Grease* | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge Information *(Continued from page 3 of Form 2F)*** 006

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge Information *(Continued from page 3 of Form 2F)*** 007

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge information *(Continued from page 3 of Form 2F)*** 008

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge information *(Continued from page 3 of Form 2F)*** 009

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge Information *(Continued from page 3 of Form 2F)*** 011

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge Information** ***(Continued from page 3 of Form 2F)*** 012

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge information** ***(Continued from page 3 of Form 2F)*** 014

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge information** ***(Continued from page 3 of Form 2F)*** 016

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

EPA ID Number (*copy from Item 1 of Form 1*)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

**VII. Discharge Information *(Continued from page 3 of Form 2F)*** 017

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Oil and Grease | <5.0 mg/l | N/A | <5.0 mg/l | not applicable | 1 | |
| Biological Oxygen Demand (BOD5) | 11 mg/l | <5 mg/l | 11 mg/l | <5 mg/l | 1 | |
| Chemical Oxygen Demand (COD) | 123 mg/l | 159 mg/l | 123 mg/l | 159 mg/l | 1 | |
| Total Suspended Solids (TSS) | 85 mg/l | 206 mg/l | 85 mg/l | 206 mg/l | 1 | |
| Total Nitrogen | 3.95 mg/l | 2.54 mg/l | 3.95 mg/l | 2.54 mg/l | 1 | |
| Total Phosphorus | 0.39 mg/l | 0.71 mg/l | 0.39 mg/l | 0.71 mg/l | 1 | |
| pH | Minimum 6.9 | Maximum 6.9 | Minimum | Maximum | 1 | |

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| Ortho-P | 0.12 mg/l | 0.16 mg/l | 0.12 mg/l | 0.16 mg/l | 1 | |
| Fecal coliform | 693 | NA | 693 | NA | 1 | |
| Enterococcus | 4100 | NA | 4100 | NA | 1 | |
| TRC | 0.0 mg/l | NA | 0.0 mg/l | NA | 1 | |

Continued from the Front

Part C - List each pollutant shown in Table 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

| Pollutant and CAS Number *(if available)* | Maximum Values *(include units)* | | Average Values *(include units)* | | Number of Storm Events Sampled | Sources of Pollutants |
|---|---|---|---|---|---|---|
| | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | Grab Sample Taken During First 20 Minutes | Flow-Weighted Composite | | |
| NA | | | | | | |
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Part D – Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

| 1. Date of Storm Event | 2. Duration of Storm Event *(in minutes)* | 3. Total rainfall during storm event *(in inches)* | 4. Number of hours between beginning of storm measured and end of previous measurable rain event | 5. Maximum flow rate during rain event *(gallons/minute or specify units)* | 6. Total flow from rain event *(gallons or specify units)* |
|---|---|---|---|---|---|
| 3/26/2010 | 750 | 0.23 | 240 | 79 | 129770 |

7. Provide a description of the method of flow measurement or estimate.

ISCO 4250 Flowmeter (Area Velocity meter). Monitoring conducted at storm water outfall 002. The collected runoff is representative of that from all of the plant storm water outfalls.

**FACILITY NAME:** Atlantic STP **VPDES PERMIT NUMBER:** VA0081248

**VPDES SEWAGE SLUDGE PERMIT APPLICATION FORM**

**SCREENING INFORMATION**

This application is divided into sections. Sections A pertain to all applicants. The applicability of Sections B, C and D depend on your facility's sewage sludge use or disposal practices. The information provided on this page will help you determine which sections to fill out.

1. All applicants must complete Section A (General Information).

2. Will this facility generate sewage sludge? X Yes __No

   Will this facility derive a material from sewage sludge? X Yes __No

   If you answered Yes to either, complete Section B (Generation Of Sewage Sludge Or Preparation Of A Material Derived From Sewage Sludge).

3. Will this facility apply sewage sludge to the land? X Yes __No

   Will sewage sludge from this facility be applied to the land? X Yes __No

   If you answered No to both questions above, skip Section C.

   If you answered Yes to either, answer the following three questions:

   a. Will the sewage sludge from this facility meet the ceiling concentrations, pollutant concentrations, Class A pathogen reduction requirements and one of the vector attraction reduction requirements 1-8, as identified in the instructions?
   __Yes X No

   b. Will sewage sludge from this facility be placed in a bag or other container for sale or give-away for application to the land? __Yes X No

   c. Will sewage sludge from this facility be sent to another facility for treatment or blending? __Yes X No

   If you answered No to all three, complete Section C (Land Application Of Bulk Sewage Sludge).

   If you answered Yes to a, b or c, skip Section C.

4. Do you own or operate a surface disposal site? __Yes X No

   If Yes, complete Section D (Surface Disposal).

## SECTION A. GENERAL INFORMATION

**All applicants must complete this section.**

1. Facility Information.
   a. Facility name: Atlantic STP
   b. Contact person: James Pletl
      Title: Chief of Technical Services Division
      Phone: (757)460-4246
   c. Mailing address:
      Street or P.O. Box: 1436 Air Rail Avenue
      City or Town: Virginia Beach State: VA Zip: 23455
   d. Facility location:
      Street or Route #: 645 Firefall Drive
      County:
      City or Town: Virginia Beach State: VA Zip: 23454
   e. Is this facility a Class I sludge management facility? X Yes ___No
   f. Facility design flow rate: 54 mgd
   g. Total population served: 348,945
   h. Indicate the type of facility:
      X Publicly owned treatment works (POTW)
      ___ Privately owned treatment works
      ___ Federally owned treatment works
      ___ Blending or treatment operation
      ___ Surface disposal site
      ___ Other (describe):

2. Applicant Information. If the applicant is different from the above, provide the following:
   a. Applicant name: Hampton Roads Sanitation District
   b. Mailing address:
      Street or P.O. Box: 1436 Air Rail Avenue
      City or Town: Virginia Beach State: VA Zip: 23455
   c. Contact person: James Pletl
      Title: Chief of Technical Services Division
      Phone: (757)460-4246
   d. Is the applicant the owner or operator (or both) of this facility?
      X owner X operator
   e. Should correspondence regarding this permit be directed to the facility or the applicant? (Check one)
      _____ facility X applicant

3. Permit Information.
   a. Facility's VPDES permit number (if applicable): VA0081248
   b. List on this form or an attachment, all other federal, state or local permits or construction approvals received or applied for that regulate this facility's sewage sludge management practices:

| Permit Number: | Type of Permit: |
|---|---|
| VAD980720353 | RCRA |
| 60959 | DEQ-Air Division |

4. Indian Country. Does any generation, treatment, storage, application to land or disposal of sewage sludge from this facility occur in Indian Country? ___Yes X No If yes, describe:

5. Topographic Map. Provide a topographic map or maps (or other appropriate maps if a topographic map is unavailable) that shows the following information. Maps should include the area one mile beyond all property boundaries of the facility:
   a. Location of all sewage sludge management facilities, including locations where sewage sludge is generated, stored, treated, or disposed.
   b. Location of all wells, springs, and other surface water bodies listed in public records or otherwise known to the applicant within 1/4 mile of the property boundaries.

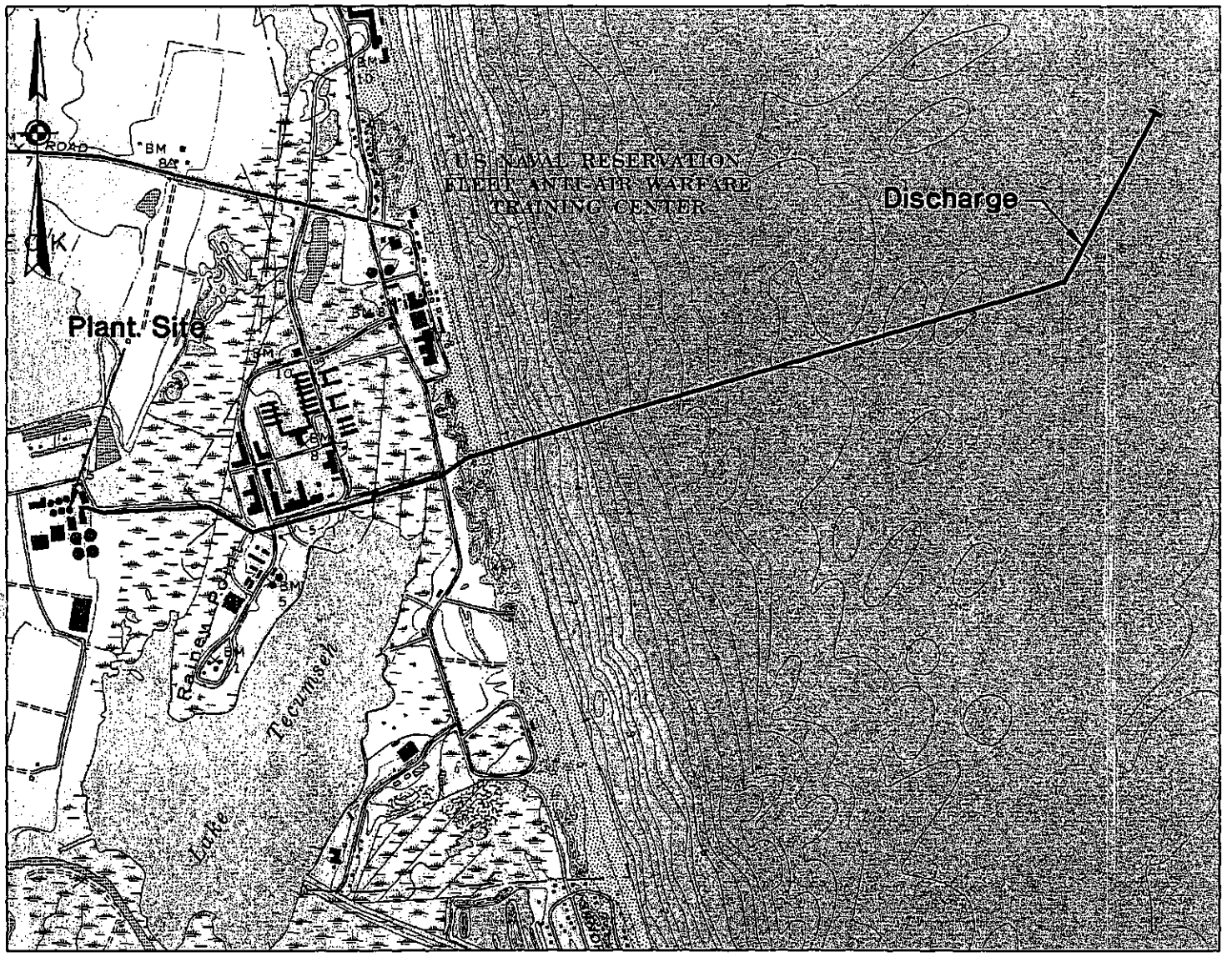
6. Line Drawing. Provide a line drawing and/or a narrative description that identifies all sewage sludge processes that will be employed during the term of the permit including all processes used for collecting, dewatering, storing, or treating sewage sludge, the destination(s) of all liquids and solids leaving each unit, and all methods used for pathogen reduction and vector attraction reduction.

7. Contractor Information. Are any operational or maintenance aspects of this facility related to sewage sludge generation, treatment, use or disposal the responsibility of a contractor? X Yes ___No
   If yes, provide the following for each contractor (attach additional pages if necessary).
   Name: Ag Nutrients, Inc.
   Mailing address:
   Street or P.O. Box: P.O. Box 57008
   City or Town: Virginia Beach State: VA Zip: 23457
   Phone: (757)426-6824
   Contractor's Federal, State or Local Permit Number(s) applicable to this facility's sewage sludge:
   HRSD VPDES VA0081248
   If the contractor is responsible for the use and/or disposal of the sewage sludge, provide a description of the service to be provided to the applicant and the respective obligations of the applicant and the contractor(s). Contractor is responsible for maintaining storage pad area. Contractor conducts applicable soils monitoring to prospective land application sites, calculates appropriate nutrient application rates, and land applies biosolids in accordance with all state and federal regulations. Contractor provides biosolids nutrient information to farmer. HRSD is responsible for providing contractor with biosolids that meet Class B pathogen requirements, vector attraction requirements, and Table III pollutant concentrations. HRSD monitors the land application operations to ensure all site management requirements are met. Land application sites are permitted under HRSD VPDES VA0081248.

8. Pollutant Concentrations. Using the table below or a separate attachment, provide sewage sludge monitoring data for the pollutants which limits in sewage sludge have been established in 9 VAC 25-31-10 et seq. for this facility's expected use or disposal practices. All data must be based on three or more samples taken at least one month apart and must be no more than four and one-half years old. **See attached sheet.**

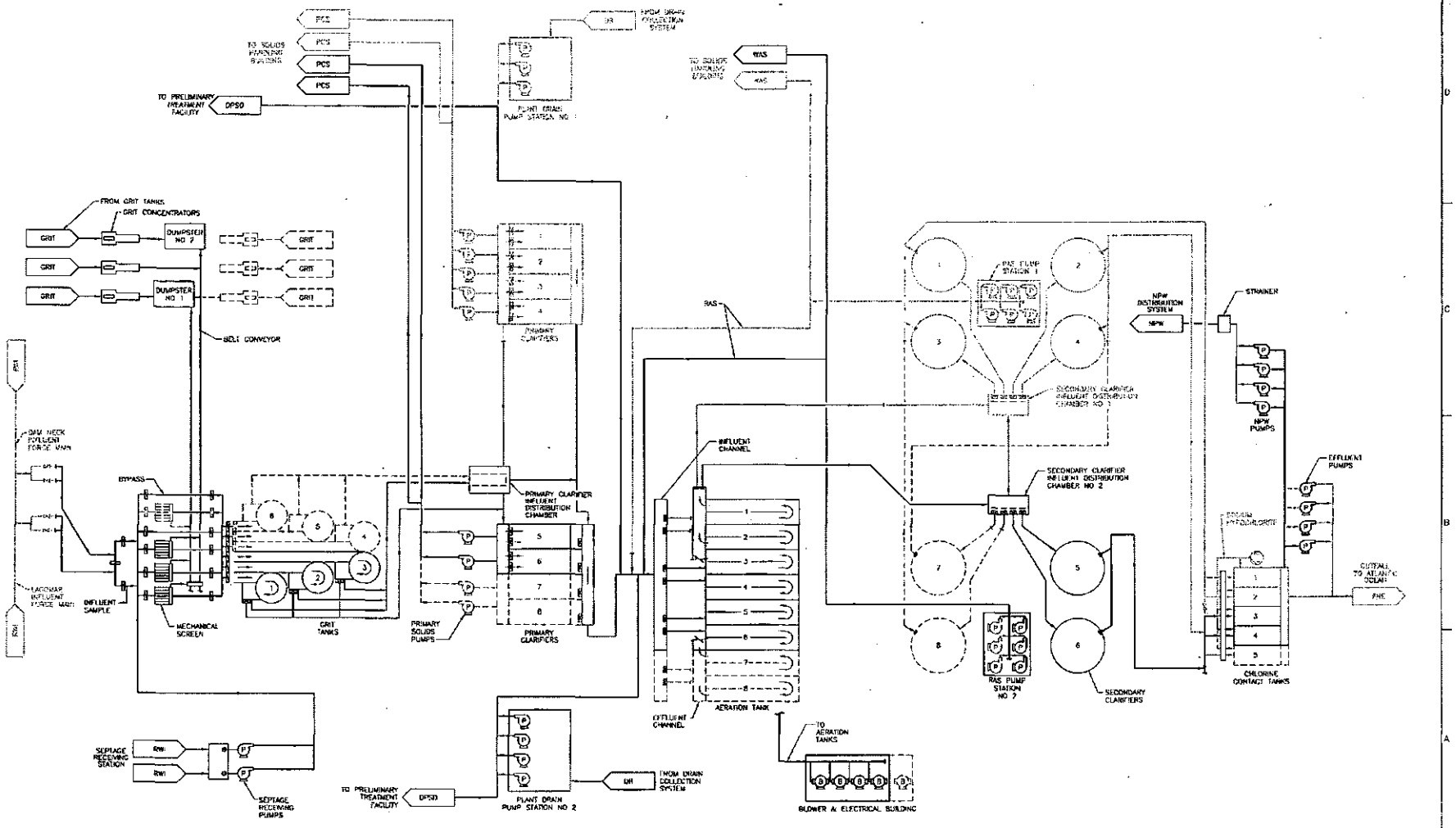
| POLLUTANT | CONCENTRATION (mg/kg dry weight) | SAMPLE DATE | ANALYTICAL METHOD | DETECTION LEVEL FOR ANALYSIS |
|---|---|---|---|---|
| Arsenic | | | | |
| Cadmium | | | | |
| Chromium | | | | |
| Copper | | | | |
| Lead | | | | |
| Mercury | | | | |
| Molybdenum | | | | |
| Nickel | | | | |
| Selenium | | | | |
| Zinc | | | | |

5.




**Location Map**
**for**
**Atlantic TP**

**June 2003** **Scale: 1"=2000'** **USGS Map Reference**




HDR

HDR Engineering, Inc.
3700 Lees Knight Dr.
Suite 200
Norfolk, VA 23502

| ISSUE | DATE | DESCRIPTION |
|---|---|---|
| C | 3/07 | ISSUED FOR CONSTRUCTION |
| A | 11/06 | ISSUED FOR BID |

PROJECT MANAGER: W. MCCOY
DESIGNED BY: G. JACOBS
DRAWN BY: K. QUATTLEBAUM
CHECKED BY:
PROJECT NUMBER: 21766

COMMONWEALTH OF VIRGINIA
WILLIAM S. MCCOY
Cert. No. 014918
3/23/07

**HAMPTON ROADS SANITATION DISTRICT**
**VIRGINIA BEACH, VIRGINIA**

**ATLANTIC TREATMENT PLANT**
**EXPANSION PHASE I, CONTRACT C**

**PROCESS FLOW DIAGRAM 1**

0 1" 2"

FILENAME: 000-11.DWG
SCALE: NOT TO SCALE

DRAWING NUMBER: G-11

SHEET 11 OF 825

# Atlantic STP Biosolids Data VA0081248

Section 8.A - Pollutant Concentrations

| Parameter | Selenium | Arsenic | Molybdenum | Zinc | Lead | Nickel | Mercury | Copper | Cadmium |
|---|---|---|---|---|---|---|---|---|---|
| Unit | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| 5/5/10 | 6 | <14 | 13 | 1600 | 43 | 14 | 1.2 | 307 | 9 |
| 5/5/10 | 4 | <12 | 11 | 1380 | 37 | 12 | 1.5 | 279 | 8 |
| 6/2/10 | 5 | <14 | 12 | 1430 | 25 | 12 | 1.4 | 266 | 4 |
| 6/2/10 | 6 | <13 | 11 | 1300 | 22 | 11 | 1.2 | 256 | 4 |
| 7/7/10 | 6 | <13 | 12 | 1410 | 30 | 13 | 1.3 | 309 | 5 |
| 7/7/10 | 4 | <13 | 9 | 1120 | 26 | 10 | 1.1 | 255 | 5 |
| 8/4/10 | <3 | <14 | 11 | 1390 | 29 | 14 | 0.7 | 87 | 5 |
| 8/4/10 | 3 | <13 | 10 | 1350 | 32 | 13 | 0.4 | 314 | 6 |
| 9/1/10 | 6 | <14 | 9 | 1370 | 34 | 14 | 1.5 | 357 | 4 |
| 9/1/10 | 4 | <13 | 6 | 1040 | 28 | 11 | 1.2 | 291 | 3 |
| 10/6/10 | 6 | <14 | 9 | 1460 | 34 | 14 | 1.3 | 353 | <2.9 |
| 10/6/10 | 5 | <14 | 8 | 1430 | 32 | 13 | 1.3 | 341 | <2.8 |
| 11/3/10 | 6 | <14 | 10 | 1460 | 30 | 13 | 0.9 | 327 | <2.8 |
| 11/3/10 | 4 | <14 | 9 | 1490 | 30 | 13 | 1.5 | 336 | <2.8 |
| 12/2/10 | 6 | <14 | 10 | 1520 | 31 | 14 | 1.2 | 355 | 3 |
| 1/6/11 | 6 | <14 | 9 | 1790 | 30 | 14 | 1.0 | 354 | 5 |
| 2/3/11 | 3 | <14 | 9 | 1470 | 27 | 12 | 1.2 | 351 | 4 |
| 3/3/11 | 5 | <14 | 10 | 1460 | 21 | 15 | 0.8 | 304 | 6 |
| 4/6/11 | 5 | <14 | 9 | 1570 | 23 | 15 | 1.1 | 317 | <2.8 |
| Method | 6020A | 6010C | 6010C | 6010C | 6010C | 6010C | 7471B | 6010C | 6010C |
| Report Limit (ug/l) | 2.5 | 20 | 4 | 4 | 5 | 4 | 0.1 | 4 | 2 |

All values are on a dry weight basis.

9. Certification. Read and submit the following certification statement with this application. Refer to the instructions to determine who is an officer for purposes of this certification. Indicate which parts of the application you have completed and are submitting:

_X_ Section A (General Information)
_X_ Section B (Generation of Sewage Sludge or Preparation of a Material Derived from Sewage Sludge)
_X_ Section C (Land Application of Bulk Sewage Sludge)
____ Section D (Surface Disposal)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title Edward G. Henifin, P.E. General Manager

Signature  Date Signed 6/6/2011

Telephone number 757-460-4242

Upon request of the department, you must submit any other information necessary to assess sewage sludge use or disposal practices at your facility or identify appropriate permitting requirements.

## SECTION B. GENERATION OF SEWAGE SLUDGE OR PREPARATION OF A MATERIAL DERIVED FROM SEWAGE SLUDGE

**Complete this section if your facility generates sewage sludge or derives a material from sewage sludge**

1. Amount Generated On Site.
   Total dry metric tons per 365-day period generated at your facility: 2904 dry metric tons (2010 estimate)

2. Amount Received from Off Site. If your facility receives sewage sludge from another facility for treatment, use or disposal, provide the following information for each facility from which sewage sludge is received. If you receive sewage sludge from more than one facility, attach additional pages as necessary.
   a. Facility name: HRSD Nansemond STP as an alternative backup plan
   b. Contact Person: James Pletl
      Title: Chief of Technical Services Division
      Phone (757)-460-4246
   c. Mailing address:
      Street or P.O. Box: 1436 Air Rail Avenue
      City or Town: Virginia Beach State: VA Zip: 23455
   d. Facility Address:
      (not P.O. Box)
   e. Total dry metric tons per 365-day period received from this facility: 0 in 2010 dry metric tons
   f. Describe, on this form or on another sheet of paper, any treatment processes known to occur at the off-site facility, including blending activities and treatment to reduce pathogens or vector attraction characteristics: Solids are digested and dewatered to meet Class B pathogen requirement and the vector attraction requirements.

3. Treatment Provided at Your Facility.
   a. Which class of pathogen reduction is achieved for the sewage sludge at your facility?
      ___Class A __X_Class B ___Neither or unknown
   b. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce pathogens in sewage sludge: Solids are digested between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius
   c. Which vector attraction reduction option is met for the sewage sludge at your facility?
      __X_ Option 1 (Minimum 38 percent reduction in volatile solids)
      ___ Option 2 (Anaerobic process, with bench-scale demonstration)
      ___ Option 3 (Aerobic process, with bench-scale demonstration)
      ___ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
      ___ Option 5 (Aerobic processes plus raised temperature)
      ___ Option 6 (Raise pH to 12 and retain at 11.5)
      ___ Option 7 (75 percent solids with no unstabilized solids)
      ___ Option 8 (90 percent solids with unstabilized solids)
      ___ None or unknown
   d. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce vector attraction properties of sewage sludge: The primary VAR option is VAR Option 1. If 38% reduction is not met, then biosolids are incorporated into the soil within 6 hours of application.
   e. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities, including blending, not identified in a - d above:

4. Preparation of Sewage Sludge Meeting Ceiling and Pollutant Concentrations, Class A Pathogen Requirements and One of Vector Attraction Reduction Options 1-8 (EQ Sludge). **Not applicable**
   **(If sewage sludge from your facility does not meet all of these criteria, skip Question 4.)**
   a. Total dry metric tons per 365-day period of sewage sludge subject to this section that is applied to the land:
      _____ dry metric tons
   b. Is sewage sludge subject to this section placed in bags or other containers for sale or give-away?
      __Yes __No

5. Sale or Give-Away in a Bag or Other Container for Application to the Land. **Not applicable**

**(Complete this question if you place sewage sludge in a bag or other container for sale or give-away prior to land application. Skip this question if sewage sludge is covered in Question 4.)**

a. Total dry metric tons per 365-day period of sewage sludge placed in a bag or other container at your facility for sale or give-away for application to the land:_____ dry metric tons

b. Attach, with this application, a copy of all labels or notices that accompany the sewage sludge being sold or given away in a bag or other container for application to the land.

6. Shipment Off Site for Treatment or Blending. *Alternative Emergency Plan*

**(Complete this question if sewage sludge from your facility is sent to another facility that provides treatment or blending. This question does not apply to sewage sludge sent directly to a land application or surface disposal site. Skip this question if the sewage sludge is covered in Questions 4 or 5. If you send sewage sludge to more than one facility, attach additional sheets as necessary.)**

a. Receiving facility name: McGill Environmental Systems

b. Facility contact: Bob Broom
Title: Manager
Phone: 804-834-8820

c. Mailing address:
Street or P.O. Box: 5056 Beef Steak Road
City or Town: Waverly State: VA Zip: 23890

d. Total dry metric tons per 365-day period of sewage sludge provided to receiving facility: 0 dry metric tons

e. List, on this form or an attachment, the receiving facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the receiving facility's sewage sludge use or disposal practices:

| Permit Number: | Type of Permit: |
|---|---|
| VDH BUR 154 | Biosolids Use Facility Operation Permit |

f. Does the receiving facility provide additional treatment to reduce pathogens in sewage sludge from your facility? X Yes __No
Which class of pathogen reduction is achieved for the sewage sludge at the receiving facility?
X Class A __Class B __Neither or unknown
Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce pathogens in sewage sludge: Aerated static pile composting which blends wood chips and wastewater treatment solids.

g. Does the receiving facility provide additional treatment to reduce vector attraction characteristics of the sewage sludge? X Yes __No
Which vector attraction reduction option is met for the sewage sludge at the receiving facility?
__ Option 1 (Minimum 38 percent reduction in volatile solids)
__ Option 2 (Anaerobic process, with bench-scale demonstration)
__ Option 3 (Aerobic process, with bench-scale demonstration)
__ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
X Option 5 (Aerobic processes plus raised temperature)
__ Option 6 (Raise pH to 12 and retain at 11.5)
__ Option 7 (75 percent solids with no unstabilized solids)
__ Option 8 (90 percent solids with unstabilized solids)
__ None unknown
Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce vector attraction properties of sewage sludge: Solids are treated in aerobic process for at least 14 days. During the time, the minimum temperature of the solids is higher than 40 degrees Celsius and the average temperature exceeds 45 degrees Celsius

h. Does the receiving facility provide any additional treatment or blending not identified in f or g above?
X Yes __No
If yes, describe, on this form or another sheet of paper, the treatment processes not identified in f or g above:
Compost is cured for approximately 30 days in windrows and turned at least 5 times per week. Wood chips are screened out of the final product before distribution.

i. If you answered yes to f., g or h above, attach a copy of any information you provide to the receiving facility to comply with the "notice and necessary information" requirement of 9 VAC 25-31-530.G.

6.1.

## NOTICE AND NECESSARY INFORMATION (NANI)

| | | |
|---|---|---|
| **Facility:** | Atlantic Treatment Plant | |
| **Biosolids Type:** | Anaerobically Digested | |
| **Monitoring Period:** | From: | To: |

A. **Pathogen Reduction (40 CFR.503.32) – Indicate the level achieved:**

Class B*

*Temperature between 35 degrees C to 55 degrees C (95 – 131 degrees F) at 15 days and 20 degrees C (68 degrees F) at 60 days.

Comments:

B. **Vector Attraction Reductions (40 CFR.503.33) – Indicate the option performed:**

- ☐ Option 1 Meet 38% reduction in volatile solids content
- ☐ Option 2 Demonstrate vector attraction reduction with additional anaerobic digestion in a bench-scale unit
- ☐ Option 3 Demonstrate vector attraction reduction with additional aerobic digestion in a bench-scale unit
- ☐ Option 4 Meet a specific oxygen uptake rate for aerobically digested biosolids
- ☐ Option 5 Compost processes at greater than 40°C for 14 days or longer.
- ☐ Option 6 Alkali addition under specified aconditions
- ☐ Option 7 Dry biosolids with unstabilized solids to at least 75 percent solids
- ☐ Option 8 Dry biosolids with unstabilized solids to at least 90 percent solids
- ☐ Option 9 Inject biosolids beneath the soil surface
- ☐ Option 10 Incorporate biosolids into the soil within 6 hours of application to or placement on the land

Comments:

C. **Certification**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or these persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| | |
|---|---|
| **Name and Official Title:** Plant Manager | **Area Code and Telephone Number:** |
| **Signature:** | **Date Signed:** |

j Does the receiving facility place sewage sludge from your facility in a bag or other container for sale or give-away for application to the land? _X_ Yes __No
If yes, provide a copy of all labels or notices that accompany the product being sold or given away.

k. Will the sewage sludge be transported to the receiving facility in a truck-mounted watertight tank normally used for such purposes? _X_ Yes ___ No. If no, provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility.
Show the haul route(s) on a location map or briefly describe the haul route below and indicate the days of the week and the times of the day sewage sludge will be transported. Truck would travel down Firefall Drive to Bold Ruler and turn left on Dam Neck Road. Turn right on General Booth Boulevard and then right on Birdneck Road. Take entrance ramp to 64W. Follow 64 until it becomes Route 58W. Take exit for 460W to Waverly. Turn left on Cabin Point Road and turn onto Beef Steak Road.

7. Land Application of Bulk Sewage Sludge.

**(Complete Question 7.a if sewage sludge from your facility is applied to the land, unless the sewage sludge is covered in Questions 4, 5 or 6; complete Question 7.b, c & d only if you are responsible for land application of sewage sludge.)**

a. Total dry metric tons per 365-day period of sewage sludge applied to all land application sites: 2904 dry metric tons. 2010 estimate

b. Do you identify all land application sites in Section C of this application? __Yes _X_No
If no, submit a copy of the Land Application Plan (LAP) with this application (LAP should be prepared in accordance with the instructions).

c. Are any land application sites located in States other than Virginia? __Yes _X_No
If yes, describe, on this form or on another sheet of paper, how you notify the permitting authority for the States where the land application sites are located. Provide a copy of the notification.

d. Attach a copy of any information you provide to the owner or lease holder of the land application sites to comply with the "notice and necessary" information requirement of 9 VAC 25-31-530 F and/or H (Examples may be obtained in Appendix IV).

8. Surface Disposal. *Not applicable*

**(Complete Question 8 if sewage sludge from your facility is placed on a surface disposal site.)**

a. Total dry metric tons per 365-day period of sewage sludge from your facility placed on all surface disposal sites: _____ dry metric tons

b. Do you own or operate all surface disposal sites to which you send sewage sludge for disposal?
__Yes __No
If no, answer questions c - g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site, attach additional pages as necessary.

c. Site name or number:

d. Contact person:
Title:
Phone: ( )
Contact is: __Site Owner __Site operator

e. Mailing address.
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

f. Total dry metric tons per 365-day period of sewage sludge from your facility placed on this surface disposal site: _____ dry metric tons

g. List, on this form or an attachment, the surface disposal site VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the sewage sludge use or disposal practices at the surface disposal site:

| Permit Number: | Type of Permit: |
|---|---|
| _____ | |
| _____ | |

Recycling That Grows, Naturally

# Nutri-GREEN® COMPOST

## LIMITED WARRANTY/DISCLAIMER

HRSD has analyzed Nutri-Green® Compost according to the requirements of the EPA, Virginia Department of Health (VDH) and the Virginia Department of Environmental Quality (DEQ). HRSD guarantees that Nutri-Green® Compost's trace metal concentrations are within the regulatory levels established for Exceptional Quality biosolids. In addition to the 2-2-0 guaranteed analysis, HRSD further guarantees that all Nutri-Green® Compost has been properly treated to reduce pathogens in accordance with EPA, VDH and DEQ requirements. Otherwise, HRSD makes no warranties, express or implied, regarding Nutri-Green® Compost.

THE USER HEREBY AGREES THAT THE IMPLIED WARRANTIES, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED ARE EXCLUDED.

There is no implied warranty arising from course of dealing, course of performance or usage of trade. Further, and without limitation, there is no warranty express or implied as to the quality or productivity of any Nutri-Green® Compost, and HRSD is not responsible for crops, gardens or other vegetation damaged, injured or destroyed from its application and/or use. The user agrees to abide by these instructions. Any oral statements made by HRSD employees, agents and/or representatives do not constitute warranties and shall not be relied upon.

NUTRI-GREEN® COMPOST SHOULD BE STORED OUT OF REACH OF CHILDREN.

Nutri-Green® Compost is a product of

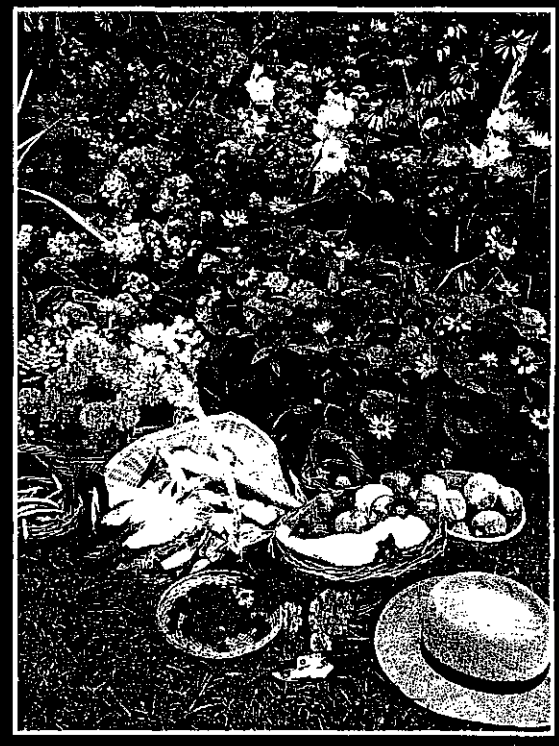
HAMPTON ROADS SANITATION DISTRICT

Cleaning Wastewater Every Day For A Better Bay

For more information please contact:
HRSD
P. O. Box 5911
Virginia Beach, VA 23471-0911
**(757) 460-4276**
**www.hrsd.com**

Recycling That Grows, Naturally

Nutri-GREEN® COMPOST



## NATURAL SOIL CONDITIONER
## 100% WEED-FREE

**LAWNS • TREES • SHRUBS • FLOWERS**
**BULBS • VEGETABLE GARDENS • HOUSE PLANTS**

## GUARANTEED ANALYSIS
**2-2-0**

Recycling That Grows. Naturally

# Nutri-GREEN® COMPOST

## HOW DOES NUTRI-GREEN® COMPOST WORK?

Valuable nutrients and organic matter from the Hampton Roads Sanitation District's wastewater treatment processes are recycled into Nutri-Green® Compost, which meets all requirements of the U. S. Environmental Protection Agency (EPA). As a beneficial soil conditioner and plant food supplement, Nutri-Green® promotes healthy plants and lawns by improving the soil in four important ways:

- Adds valuable organic matter to the soil
- Provides long-lasting essential plant nutrients
- Increases the ability of sandy soil to hold water and nutrients
- Improves the drainage and aeration of clay soil

## GUARANTEED ANALYSIS

**2-2-0**

| | |
|---|---|
| Total Nitrogen | 2% |
| 1.0% Water Insoluble Nitrogen | |
| Available Phosphoric Acid ($P_2O_5$) | 2% |
| Soluble Potash ($K_2O$) | 0% |

## TIPS FOR USING NUTRI-GREEN® COMPOST

**(1 bag covers 12 square feet at a depth of 1 inch)**

### VEGETABLE GARDENS

Apply 1 inch Nutri-Green® Compost (8 bags per 100 square feet) and incorporate to a depth of 4 to 6 inches into existing soil. Plant and then water thoroughly.

### NEW LAWNS

Apply 1 inch Nutri-Green® Compost (8 bags per 100 square feet) and till to a depth of 4 to 6 inches into existing soil. Seed or sod as desired and then water thoroughly.

### SMALL BARE SPOTS

Apply 1/2 to 1 inch Nutri-Green® Compost (4 to 8 bags per 100 square feet) and incorporate to a depth of 3 to 4 inches into existing soil. Reseed or sod and then water thoroughly.

### ESTABLISHED LAWNS

Aerate lawn and topdress with 1/4 to 1/2 inch Nutri-Green® Compost (2 to 4 bags per 100 square feet). Overseed if desired and then water thoroughly.

### ORNAMENTAL TREES AND SHRUBS

To transplant, dig a hole approximately twice the size of the root ball. Mix 1/3 Nutri-Green® Compost with 2/3 of the existing soil and backfill. Plant and then water thoroughly.

### FLOWERS, BULBS, AND BEDDING PLANTS

Apply 1 inch Nutri-Green® Compost (8 bags per 100 square feet) and incorporate to a depth of 4 to 6 inches into existing soil. Plant and then water thoroughly.

### ESTABLISHED BED AREAS

Apply 1/2 inch Nutri-Green® Compost (4 bags per 100 square feet) and incorporate to a depth of 4 to 6 inches into existing soil. Water thoroughly.

### HOUSE PLANTS

Mix 1 part Nutri-Green® Compost with 1 part perlite and 2 parts all-purpose potting soil. Plant and then water thoroughly.

7.c.



**Land Application Plan**

It is estimated that HRSD needs a minimum of 2,000 acres of agricultural land per year to sustain full-scale land application operations. The evaluation of potential land application sites is a continual process to ensure that an adequate amount of land is available for the project. The selection process for agricultural farm sites involves the evaluation of the physical, chemical, economic and social characteristics of each prospective site. Prospective farm sites will generally be located in the Virginia Beach, Chesapeake, Suffolk and Isle of Wight County areas. Per agreement with Chesapeake, HRSD will not land apply biosolids within 200 feet of the Northwest River so this is a factor that will be taken into account when evaluating prospective sites. Each prospective site will be inspected by HRSD and HRSD's land application contractor and evaluated for suitability. Sites with the following criteria will be avoided:

◊ Areas bordered by ponds, lakes, rivers and streams without appropriate buffer areas

◊ Wetlands and marshes

◊ Steep areas with sharp relief

◊ Undesirable geology (karst, fractured bedrock, rocky, etc.), nonarable land

◊ Undesirable soil conditions

◊ Environmentally sensitive areas such as floodplains or intermittent streams, ponds or endangered species habitat areas

The evaluation process involves the following steps:

- Initial site screening
  - ⇒ Evaluate regulatory requirements
  - ⇒ Evaluate public acceptance
  - ⇒ Evaluate land area requirement
- Field site survey
  - ⇒ Determine land use (current and future)
  - ⇒ Determine zoning compliance
  - ⇒ Evaluate aesthetics
- Field investigations and soil analysis
  - ⇒ Determine soil characteristics
  - ⇒ Determine hydrology
- Economic feasibility based on site location
  - ⇒ Evaluate transport feasibility
- Final site selection
  - ⇒ Prepare site information package

A site-specific information package will be prepared for each suitable site. Site packages will be submitted to the Department of Environmental Quality for review and approval 90 days prior to commencement of land application operations on the site. HRSD will also send a notification letter to the US Fish and Wildlife Service.

Site information packages will typically contain the following information

- Farm Acreage Summary

  A summary listing of the landowner; site number(s) - designated by the Soil Conservation Service, farmer tract number; field number(s); gross acres and net acres available for spreading, and the environmental sensitivity of the soils.

- Soil Information

  Information obtained from the Natural Resource Conservation Service – Web Soil Survey: Soil Map with legend and soils information, and a detailed description of each soil series.

- Landowner/Operator Agreements

  A signed agreement secured from the farm operator and landowner.

- Maps

  A map indicating the site location and its general vicinity, topographic map, field map with acreage prepared by local Farm Service Agency, tax map containing parcel information.

- Field Information

Including tract name, FSA number, location, fields, total acres and usable acres, slope class, hydrologic group, and a summary of soil test results, and field productivities for major crops and yield ranges.

- Soil Test Report

  Soil samples will be taken from all fields for laboratory analysis. Each field will be sampled by taking a number of cores and mixing them to form a representative composite sample. The cores will be obtained with a tube-type soil sampler (1 inch diameter) by first scraping away surface litter and then inserting the sampler to plant root depth, 8 inches for row crops, or 4 inches for pasture land. After mixing, the composite sample will be packaged and sent to a qualified laboratory for analysis. Soil samples will be evaluated for cation exchange capacity, pH, and plant nutrients, phosphorus and potassium. Results will be included in each site package.

7.d.

# SMITHAG AND ENVIRONMENTAL

March 14, 2011

Scott Weatherly
412 Ballahack Road
Chesapeake, VA 23322

RE: ***Nutri-Green®*** Farm Report

Dear Mr. Weatherly:

Ag Nutrients, Inc. wants to thank you for your participation in H.R.S.D.'s *Nutri-Green®* land application program. The *Nutri-Green®* biosolids are a valuable soil amendment, which greatly reduces your need for the application of commercial fertilizer. *Nutri-Green®* biosolids also provides a soil conditioning benefit to your fields in the form of added organic matter.

The enclosed information details the analysis and amount of *Nutri-Green®* biosolids applied to each field, a nutrient balance sheet for each field, nutrients added to each field, field soil description, a value sheet for each field, maps, along with Nutrient Management Plan Special Conditions for Biosolids Application.

Due to *Nutri-Green®* biosolids being an organic material, plant nutrients are released slowly as it is decomposed through the mineralization process. A brief description of the first year's primary plant nutrient availability is as follows:

**Nitrogen**
The Plant Available Nitrogen (PA-N) listed is the amount which will become available during the first year's growing season. A portion of the supplied nitrogen is inorganic (ammonia-nitrogen) and is readily available for crop use immediately (providing starter nitrogen), while the remaining becomes available during the growing season through the decomposition process converting the organic nitrogen to inorganic (ammonium and nitrate) available nitrogen.
The greatest release from the organic nitrogen portion of the *Nutri-Green®* biosolids applied occurs during the first growing season. The Nutrient Balance sheet shows the amount of Nitrogen available during the second and third growing seasons allowing you to reduce your fertilizer requirements for these additional growing seasons.

3160 Jacobia Lane
Cape Charles, VA
23310

PHONE (757) 678-6129
FAX (757) 331-3957
E-MAIL smithagronomic@verizon.net
WEB SITE www.smithagronomic.com

**Phosphorus**
This report lists the total and available phosphorus applied per dry ton of *Nutri-Green®* biosolids applied. A large portion of the total phosphorus is tightly bound in the organic matter. We use an estimate of 33% of the total phosphorus will be available the first growing season. The available phosphorus applied has been converted to phosphate ($P_2O_5$) for use in the Nutrient Balance Sheet as well as providing available phosphate in the second and third growing seasons.

**Potassium**
*Nutri-Green®* biosolids provides only a small portion of the potassium requirements for crop growth. The Nutrient Balance Sheet provides the necessary information for additional potash needs over and above what is applied in the *Nutri-Green®* biosolids and is available from the soil resources.

A summary of the estimated primary, secondary, and trace nutrients are found in this report as well as the value added of these nutrients. This *Nutri-Green®* biosolids program also provides for the addition of lime if current soil analyses show a need.

We look forward to your continued participation in H.R.S.D.'s *Nutri-Green®* land application program. If you need any additional information regarding this report, please do not hesitate to contact me at (757) 678-6129 or Jim Salmons at (757) 426-6824.

Sincerely,

Christy F. Smith

Christy F. Smith

# *NUTRIENT MANAGEMENT PLAN IDENTIFICATION*

***Operator***
*O. G. Weatherly*
*1953 Long Ridge Road*
*Chesapeake, VA 23322*
*757-421-3005*

## *F-1790 T-2489*

***Watershed Summary***
Watershed: AS15
County: Chesapeake

***Nutrient Management Planner***
*Christy F. Smith*
*3160 Jacobia Lane*
*Cape Charles, VA 23310*

*Certification Code: 297*

***Acreage Use Summary***
Total Acreage in this plan: 113.1
Usable cropland acreage108.6

| | |
|---|---|
| Hayland: | 0. |
| Pasture: | 0. |
| Specialty: | 0. |

***Livestock Summary***

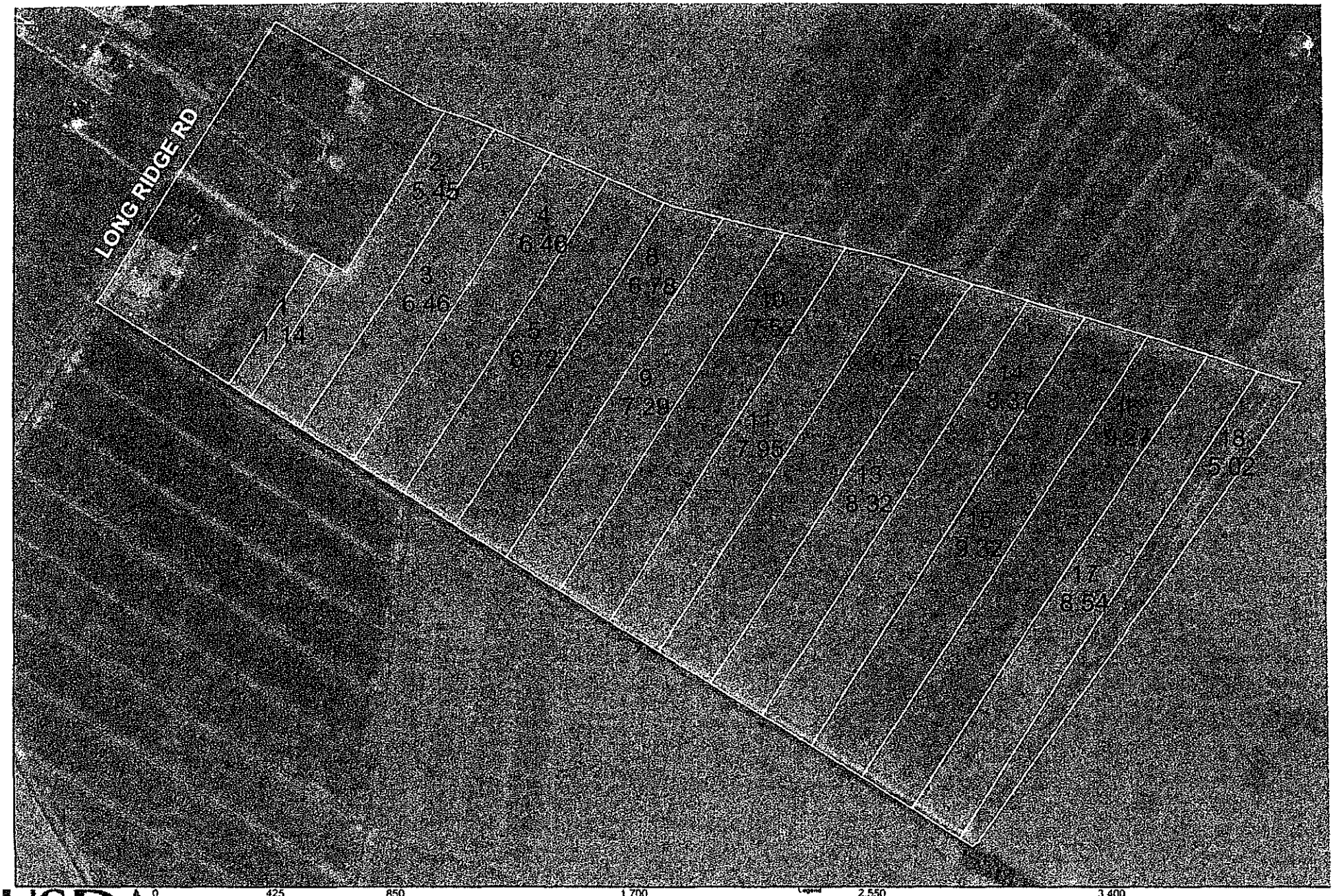
| | |
|---|---|
| Beef Cattle | 0 |
| Dairy Cattle | 0 |
| Poultry | 0 |
| Swine | 0 |
| Other | 0 |

***Manure Production Balance***

| | Imported | Produced | Exported | Used | Net |
|---|---|---|---|---|---|
| **kgals** | 0. | 0. | 0. | 0. | 0. |
| **tons** | 0. | 0. | 0. | 0. | 0. |

*Plan written 1/2/2011*
*Valid until 1/2/2014*

**Signature:** Christy F. Smith 1/2/2011
**Planner** **date**




USDA

Prepared by Chesapeake
Farm Service Agency

# Farm: 1790
# Tract: 2489

**Wetland Determination Identifiers**
- Restricted Use
- Limited Restrictions
- Exempt from Conservation Compliance Provisions

clu.SDE.clu_a_va550

Date: 12/30/2009

113.06 acres
Weatherly

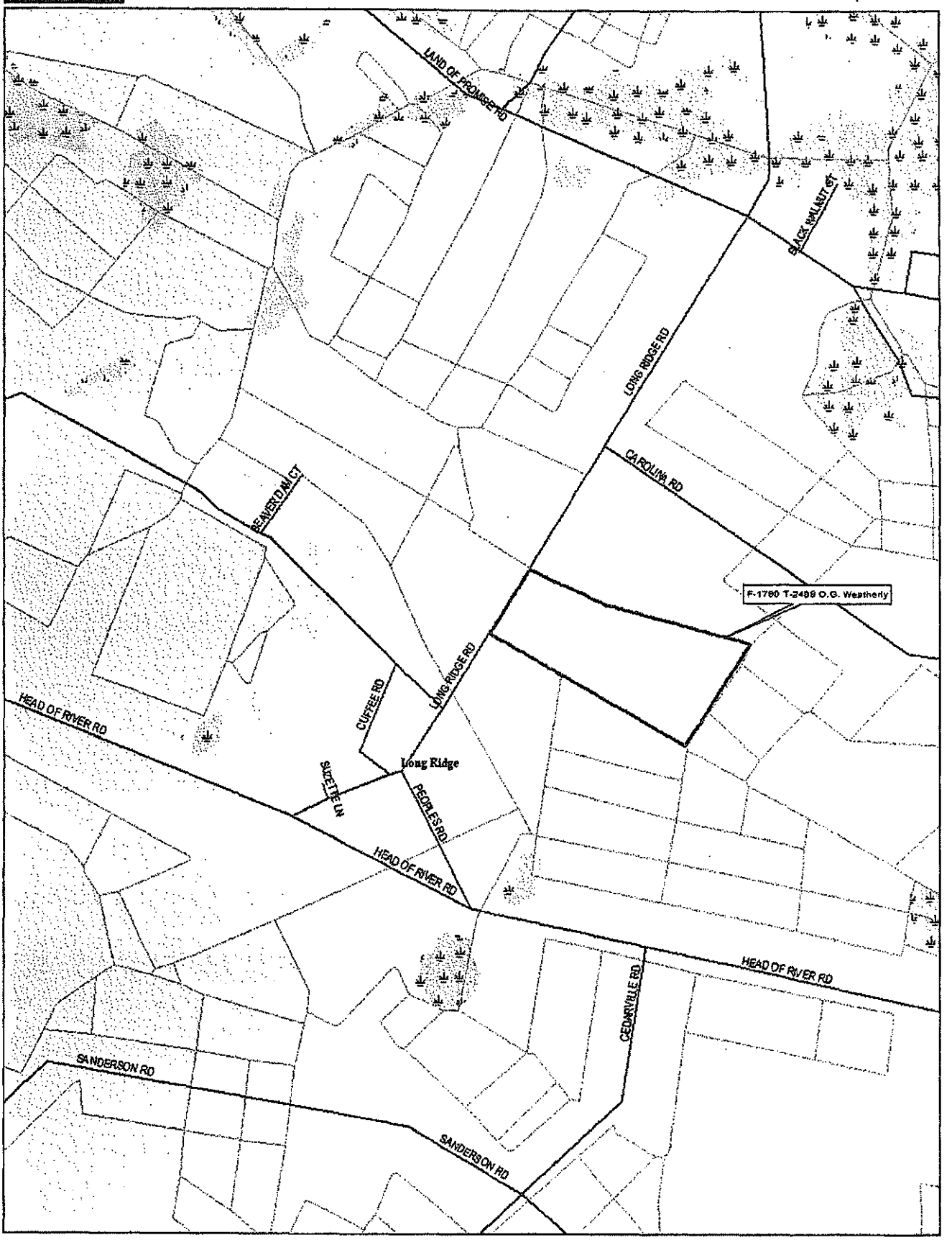
N

1 inch equals 344 feet

Disclaimer: Wetland identifiers do not represent the size, shape or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

DeLORME

Topo USA® 5.0

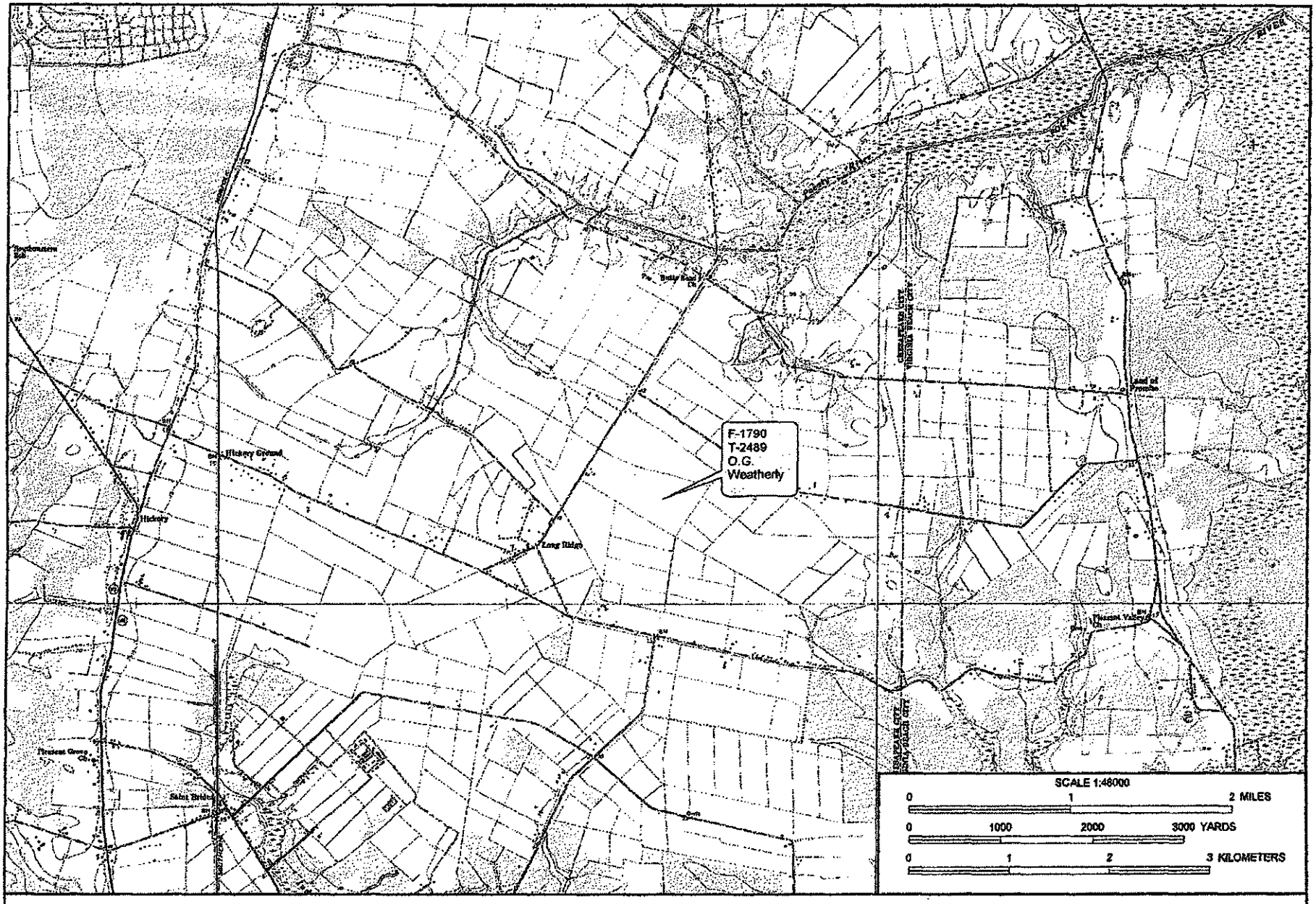





MN (10.8° W)

0 800 1600 2400 3200 4000 ft

Data Zoom 13-0




Name: FENTRESS
Date: 12/18/2010
Scale: 1 inch equals 4000 feet

Location: 036° 38' 20.07" N 076° 08' 59.64" W NAD 27

F-1790 T-2489 Owner: O. G. Weatherly Operator: O. G. Weatherly

CLICK HERE to Search by Address or Tax ID Number Help

Map Theme: Aerial Imagery Show Legend Printer-Friendly Layout

**Parcel Information**

**Map & Parcel Number**
0870000000150
**Legal Description**
RT 1 GREEN RIDGE
FARM 123.518AC
**Deed Book**
7547
**Deed Page**
541
**Map Book**
14
**Map Page**
61
**APZ ZONE**

**Flood Ins. Rate Map**

**In CBPA**

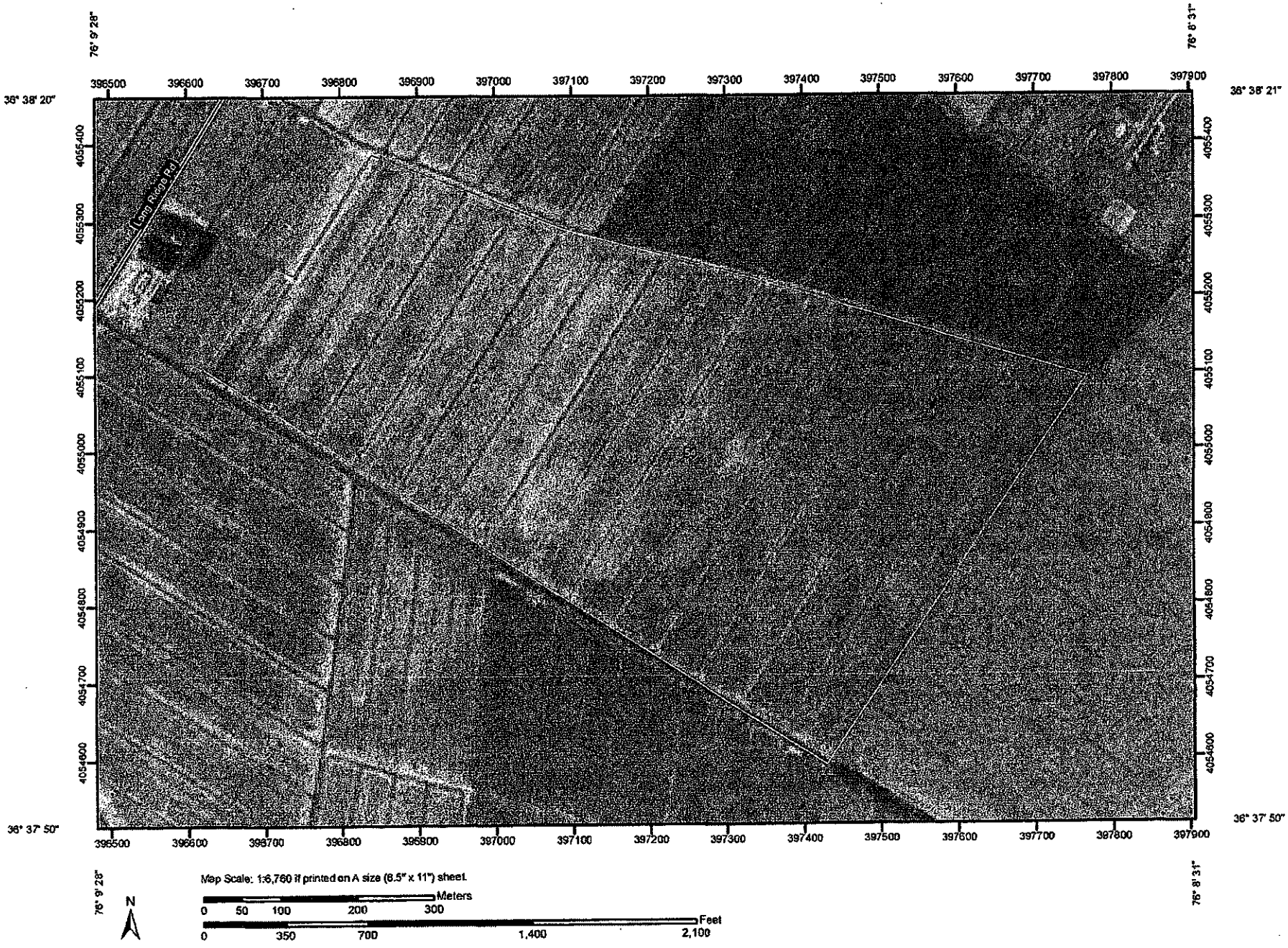
**Fire Station**
6
**Fire Reporting Dist.**
613
**Voting Precinct**
Indian Creek
**House District**
081
**SEN_DIST**
14
**Voting Location**
Cross Roads Community Church
**Voting Number**
17
**Voting Address**
2109 Centerville Tpke S
**Subdivision**

**Subdivision Map**

**Neighborhood_**

**Census Tract**
21102
**Planning Area**
S. Chesapeake
**Police Precinct**
1
**Police Beat**
114
**Police Reporting Dist.**
92110

Soil Map—Chesapeake City, Virginia
(F-1790 T-2489 O.G. Weatherly)



## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Units

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

**Special Line Features**
- Gully
- Short Steep Slope
- Other

**Political Features**
- Cities

**Water Features**
- Oceans
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

## MAP INFORMATION

Map Scale: 1:6,760 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chesapeake City, Virginia
Survey Area Data: Version 10, Jan 11, 2010

Date(s) aerial images were photographed: 6/25/2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Chesapeake City, Virginia (VA550) | | | |
|---|---|---|---|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
| 54 | Weeksville mucky silt loam, 0 to 1 percent slopes | 109.8 | 100.0% |
| Totals for Area of Interest | | 109.8 | 100.0% |

# Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

# Report—Map Unit Description

# Chesapeake City, Virginia

## 54—Weeksville mucky silt loam, 0 to 1 percent slopes

**Map Unit Setting**

*Elevation:* 0 to 30 feet
*Mean annual precipitation:* 41 to 56 inches
*Mean annual air temperature:* 57 to 61 degrees F
*Frost-free period:* 186 to 221 days

**Map Unit Composition**

*Weeksville and similar soils:* 85 percent
*Minor components:* 15 percent

## Description of Weeksville

### Setting

*Landform:* Marine terraces
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Silty marine deposits

### Properties and qualities

*Slope:* 0 to 1 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Very poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* About 0 to 12 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* High (about 10.6 inches)

### Interpretive groups

*Land capability (nonirrigated):* 4w

### Typical profile

*0 to 22 inches:* Silt loam
*22 to 50 inches:* Silt loam
*50 to 72 inches:* Fine sand

## Minor Components

### Deloss

*Percent of map unit:* 5 percent
*Landform:* Marine terraces
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear

### Pasquotank

*Percent of map unit:* 5 percent
*Landform:* Marine terraces
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear

### Hyde

*Percent of map unit:* 5 percent
*Landform:* Marine terraces
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear

*Across-slope shape:* Linear

## Data Source Information

Soil Survey Area: Chesapeake City, Virginia
Survey Area Data: Version 10, Jan 11, 2010

# *Nutrient Management Plan Balance Sheet*
# *(Spring, 2011-Spring, 2014)*
# *O. G. Weatherly*
# *Planner: Christy F. Smith (cert. No. 297)*

**Tract: 2489** **Location: Chesapeake**

*(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)*

| Field CFSA No. /Name | Size (ac) Total/ Used | Yr. | Crop | Needs N-P-K (lbs/ac) | Leg /Man Resid | Manure/Biosld Rate & Type (season) | IT (d) | Man/Bios N-P-K (lbs/ac) | Net = Needs - appld N-P-K (lbs/ac) | Sum P rem cred | Commercial N-P-K (lbs/ac) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1790/1-5(N) | 26/25 | 2011 | Corn (grain) | 170-0-60 | 0/0 | 12.7t HRSD(Sp) | >7 | 113-378-15 | 55-(380)-45 | N/A | 0-0-40(ba) | 1 |
| | | | | | | | | | | | 25-0-0(sd) | 2 |
| | | | Wheat (grain) | 100-0-40 | 0/25 | | | | 75-(380)-45 | N/A | 20-0-40(br) | 3 |
| | | 2012 | ... ... ... | -- -- -- | | | | | | | 45-0-0(td) | 4 |
| | | | Soybeans (DC) | 0-0-40 | 0/0 | | | | 0-(380)-45 | N/A | 0-0-40(br) | 5 |
| | | | Fallow | 0-0-0 | 0/0 | | | | 0-(380)-5 | N/A | | |
| | | 2013 | Soybeans (FS) | 0-0-40 | 0/25 | | | | (25)-(380)-45 | N/A | 0-0-40(br) | |
| 1790/8-10(N) | 22/21 | 2011 | Corn (grain) | 170-0-60 | 0/0 | 13.1t HRSD(Sp) | >7 | 116-390-16 | 55-(390)-45 | N/A | 0-0-40(ba) | 1 |
| | | | | | | | | | | | 20-0-0(sd) | 2 |
| | | | Wheat (grain) | 100-0-40 | 0/26 | | | | 75-(390)-45 | N/A | 20-0-40(br) | 3 |
| | | 2012 | ... ... ... | -- -- -- | | | | | | | 45-0-0(td) | 4 |
| | | | Soybeans (DC) | 0-0-40 | 0/0 | | | | 0-(390)-45 | N/A | 0-0-40(br) | 5 |
| | | | Fallow | 0-0-0 | 0/0 | | | | 0-(390)-5 | N/A | | |
| | | 2013 | Soybeans (FS) | 0-0-40 | 0/26 | | | | (25)-(390)-45 | N/A | 0-0-40(br) | |
| 1790/11-13(N) | 25/24 | 2011 | Corn (grain) | 170-0-60 | 0/0 | 11.3t HRSD(Sp) | >7 | 100-336-13 | 70-(335)-45 | N/A | 20-0-45(ba) | 1 |
| | | | | | | | | | | | 25-0-0(sd) | 2 |
| | | | Wheat (grain) | 100-0-40 | 0/22 | | | | 80-(335)-40 | N/A | 20-0-40(br) | 3 |
| | | 2012 | ... ... ... | -- -- -- | | | | | | | 50-0-0(td) | 4 |
| | | | Soybeans (DC) | 0-0-40 | 0/0 | | | | 0-(335)-40 | N/A | 0-0-40(br) | 5 |
| | | | Fallow | 0-0-0 | 0/0 | | | | 0-(335)-0 | N/A | | |
| | | 2013 | Soybeans (FS) | 0-0-40 | 0/22 | | | | (20)-(335)-40 | N/A | 0-0-40(br) | |
| 1790/14-15(N) | 18/17 | 2011 | Corn (grain) | 170-0-40 | 0/0 | 9.4t HRSD(Sp) | >7 | 83-280-11 | 85-(280)-30 | N/A | 20-0-25(ba) | 1 |
| | | | | | | | | | | | 45-0-0(sd) | 2 |
| | | | Wheat (grain) | 100-0-30 | 0/19 | | | | 80-(280)-35 | N/A | 25-0-30(br) | 3 |
| | | 2012 | ... ... ... | -- -- -- | | | | | | | 50-0-0(td) | 4 |
| | | | Soybeans (DC) | 0-0-30 | 0/0 | | | | 0-(280)-35 | N/A | 0-0-30(br) | 5 |
| | | | Fallow | 0-0-0 | 0/0 | | | | 0-(280)-5 | N/A | | |
| | | 2013 | Soybeans (FS) | 0-0-30 | 0/19 | | | | (20)-(280)-35 | N/A | 0-0-30(br) | |

Tract: 2489 Location: Chesapeake

| Field CFSA No. /Name | Size (ac) Total/ Used | Yr. | Crop | Needs N-P-K (lbs/ac) | Leg /Man Resid | Manure/Biosld Rate & Type (season) | IT (d) | Man/Bios N-P-K (lbs/ac) | Net = Needs - appld N-P-K (lbs/ac) | Sum P rem cred | Commercial N-P-K (lbs/ac) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1790/16-18(N) | 23/22 | 2011 | Corn (grain) | 170-0-40 | 0/0 | 9.4t HRSD(Sp) | >7 | 83-280-11 | 85-(280)-30 | N/A | 20-0-25(ba) | 1 |
| | | | | | | | | | | | 45-0-0(sd) | 2 |
| | | | Wheat (grain) | 100-0-30 | 0/19 | | | | 80-(280)-35 | N/A | 25-0-30(br) | 3 |
| | | 2012 | ... ... ... | -- -- -- | | | | | | | 50-0-0(td) | 4 |
| | | | Soybeans (DC) | 0-0-30 | 0/0 | | | | 0-(280)-35 | N/A | 0-0-30(br) | 5 |
| | | | Fallow | 0-0-0 | 0/0 | | | | 0-(280)-5 | N/A | | |
| | | 2013 | Soybeans (FS) | 0-0-30 | 0/19 | | | | (20)-(280)-35 | N/A | 0-0-30(br) | |

**Commercial Application Methods:**

**br - Broadcast ba - Banded sd - Sidedress**

***Notes:***

1 Band with planter

2 On fine textured soils, applying the sidedress N shortly after the 12" stage is suggested so rainfall will position the N in the corn rooting area by the time of maximum crop demand for N. A PSNT is an effective tool in determining rate of N.

3 A nitrate soil test is recommended as the basis for modifying N rate. If the nitrate N is the top 6" is above 30 ppm, no fall N is needed. If nitrate N is below 30 ppm, apply 15-30 lbs N.

4 Recommend dividing this application between Zadocks growth stage 25 & 30. Refer to N management attachments for modifying rate.

5 May be broadcast to previous crop. However, on soils with high leaching potential, split applications of K are preferred.

# Farm Summary Report

**Plan:** **New Plan** **Spring, 2011 - Spring, 2014**

**Farm Name:** **O. G. Weatherly**
Location: Chesapeake
Specialist: Christy F. Smith
N-based Acres: 108.6
P-based Acres: 0.0

**Tract Name:** **2489**
FSA Number: 1790
Location: Chesapeake

**Field Name:** **1-5**
Total Acres: 26.23 Usable Acres: 25.00
FSA Number: 1790
Tract: 2489
Location: Chesapeake
Slope Class: A Hydrologic Group: C

***Soil Test Results:***

| DATE | PH | P | K | Lab |
|---|---|---|---|---|
| Wi-2010 | 5.5 | VH(171 P lbs/acre) | H-(197 K lbs/acre) | Virginia Tech |

**Field Name:** **8-10**
Total Acres: 21.59 Usable Acres: 20.80
FSA Number: 1790
Tract: 2489
Location: Chesapeake
Slope Class: A Hydrologic Group: C

***Soil Test Results:***

| DATE | PH | P | K | Lab |
|---|---|---|---|---|
| Wi-2010 | 5.3 | VH(169 P lbs/acre) | H-(190 K lbs/acre) | Virginia Tech |

**Field Name:** **11-13**
Total Acres: 24.72 Usable Acres: 23.90
FSA Number: 1790
Tract: 2489
Location: Chesapeake
Slope Class: A Hydrologic Group: C

***Soil Test Results:***

| DATE | PH | P | K | Lab |
|---|---|---|---|---|
| Wi-2010 | 5.9 | VH(185 P lbs/acre) | H-(188 K lbs/acre) | Virginia Tech |

**Field Name:** **14-15**

| | | | |
|---|---|---|---|
| Total Acres: | 17.69 | Usable Acres: | 17.10 |
| FSA Number: | 1790 | | |
| Tract: | 2489 | | |
| Location: | | Chesapeake | |
| Slope Class: | A | Hydrologic Group: | C |

***Soil Test Results:***

| DATE | PH | P | K | Lab |
|---|---|---|---|---|
| Wi-2010 | 6.0 | VH(201 P lbs/acre) | H(233 K lbs/acre) | Virginia Tech |

**Field Name:** **16-18**

| | | | |
|---|---|---|---|
| Total Acres: | 22.83 | Usable Acres: | 21.80 |
| FSA Number: | 1790 | | |
| Tract: | 2489 | | |
| Location: | | Chesapeake | |
| Slope Class: | A | Hydrologic Group: | C |

***Soil Test Results:***

| DATE | PH | P | K | Lab |
|---|---|---|---|---|
| Wi-2010 | 6.0 | VH(201 P lbs/acre) | H(212 K lbs/acre) | Virginia Tech |

*Field Productivities for Major Crops*

| Tract Name | Tract/ Field | Field Name | Acres | Predominant Soil Series | Corn | Small Grain | Alfalfa | Grass Hay | Environmental Warnings |
|---|---|---|---|---|---|---|---|---|---|
| 2489 | 1790/1790 | 1-5 | 25 | Weeksville | Ib | II | Not Suited | I | |
| | 1790/1790 | 8-10 | 21 | Weeksville | Ib | II | Not Suited | I | |
| | 1790/1790 | 11-13 | 24 | Weeksville | Ib | II | Not Suited | I | |
| | 1790/1790 | 14-15 | 17 | Weeksville | Ib | II | Not Suited | I | |
| | 1790/1790 | 16-18 | 22 | Weeksville | Ib | II | Not Suited | I | |

*Yield Range*

| Field Productivity Group | Corn Grain Bu/Acre | Barley/Intensive Wheat Bu/Acre | Std. Wheat Bu/Acre | Alfalfa Tons/Acre | Grass/Hay Tons/Acre |
|---|---|---|---|---|---|
| I | >170 | >80 | >64 | >6 | >4.0 |
| II | 150-170 | 70-80 | 56-64 | 4-6 | 3.5-4.0 |
| III | 130-150 | 60-70 | 48-56 | <4 | 3.0-3.5 |
| IV | 100-130 | 50-60 | 40-48 | NA | <3.0 |
| V | <100 | <50 | <40 | NA | NA |

## Application Summary Report

**2011: Corn (grain)**

| Tract | Field | Acres | Manure Rate and Type (Season) | Broadcast Commercial | Banded Commercial | Topdress Commercial | Lime (tons) |
|---|---|---|---|---|---|---|---|
| 2489 | 1-5 | 25.0 | 12.7t HRSD(Sp) | | 0-0-40(Sp) | 25-0-0(Su) | |
| | 8-10 | 20.8 | 13.1t HRSD(Sp) | | 0-0-40(Sp) | 20-0-0(Su) | |
| | 11-13 | 23.9 | 11.3t HRSD(Sp) | | 20-0-45(Sp) | 25-0-0(Su) | |
| | 14-15 | 17.1 | 9.4t HRSD(Sp) | | 20-0-25(Sp) | 45-0-0(Su) | |
| | 16-18 | 21.8 | 9.4t HRSD(Sp) | | 20-0-25(Sp) | 45-0-0(Su) | |

**2011: Wheat (grain)**

| Tract | Field | Acres | Manure Rate and Type (Season) | Broadcast Commercial | Banded Commercial | Topdress Commercial | Lime (tons) |
|---|---|---|---|---|---|---|---|
| 2489 | 1-5 | 25.0 | | 20-0-40(Fa) | | 45-0-0(Sp) | |
| | 8-10 | 20.8 | | 20-0-40(Fa) | | 45-0-0(Sp) | |
| | 11-13 | 23.9 | | 20-0-40(Fa) | | 50-0-0(Sp) | |
| | 14-15 | 17.1 | | 25-0-30(Fa) | | 50-0-0(Sp) | |
| | 16-18 | 21.8 | | 25-0-30(Fa) | | 50-0-0(Sp) | |

**2012: Soybeans (DC)**

| Tract | Field | Acres | Manure Rate and Type (Season) | Broadcast Commercial | Banded Commercial | Topdress Commercial | Lime (tons) |
|---|---|---|---|---|---|---|---|
| 2489 | 1-5 | 25.0 | | 0-0-40(Su) | | | |
| | 8-10 | 20.8 | | 0-0-40(Su) | | | |
| | 11-13 | 23.9 | | 0-0-40(Su) | | | |
| | 14-15 | 17.1 | | 0-0-30(Su) | | | |
| | 16-18 | 21.8 | | 0-0-30(Su) | | | |

**2013: Soybeans (FS)**

| Tract | Field | Acres | Manure Rate and Type (Season) | Broadcast Commercial | Banded Commercial | Topdress Commercial | Lime (tons) |
|---|---|---|---|---|---|---|---|

| | | | |
|---|---|---|---|
| 2489 | 1-5 | 25.0 | 0-0-40(Sp) |
| | 8-10 | 20.8 | 0-0-40(Sp) |
| | 11-13 | 23.9 | 0-0-40(Sp) |
| | 14-15 | 17.1 | 0-0-30(Sp) |
| | 16-18 | 21.8 | 0-0-30(Sp) |

***Soil Test Summary***

| Tract | Field | Acre | Date | P2O5 | K2O | Lab | Soil pH |
|---|---|---|---|---|---|---|---|
| 2489 | 1-5 | 25 | 2010-Wi | VH (171 P lbs/acre) | H- (197 K lbs/acre) | Virginia Tech | 5.5 |
| 2489 | 8-10 | 21 | 2010-Wi | VH (169 P lbs/acre) | H- (190 K lbs/acre) | Virginia Tech | 5.3 |
| 2489 | 11-13 | 24 | 2010-Wi | VH (185 P lbs/acre) | H- (188 K lbs/acre) | Virginia Tech | 5.9 |
| 2489 | 14-15 | 17 | 2010-Wi | VH (201 P lbs/acre) | H (233 K lbs/acre) | Virginia Tech | 6. |
| 2489 | 16-18 | 22 | 2010-Wi | VH (201 P lbs/acre) | H (212 K lbs/acre) | Virginia Tech | 6. |

Lab ID: 10-56782 2010-12-14 NORTHAMPTON / 131

# *Virginia Cooperative Extension*
## Soil Test Report


Northampton County Office
7247 Young Street, Suite A
Machipongo, VA 23405
757-678-7946

Virginia Tech Soil Testing Laboratory
145 Smyth Hall (0465)
Blacksburg, VA 24061
www.soiltest.vt.edu


SEE ENCLOSED NOTES:
1 2

OWNER
SMITH A G
3160 JACOBIA LANE

CAPE CHARLES, VA 23310

COPY FOR

SAMPLE HISTORY

| Sample ID | Field ID | LAST CROP | | LAST LIME APPLICATION | | SOIL INFORMATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Name | Yield | Months Prev. | Tons/Acre | SMU-1 % | SMU-2 % | SMU-3 % | Yield Estimate | Productivity Group |
| 24895 | WEATHERLY | | | | | | | | | IIb |

LAB TEST RESULTS (see Note 1)

| Analysis | P (lb/A) | K (lb/A) | Ca (lb/A) | Mg (lb/A) | Zn (ppm) | Mn (ppm) | Cu (ppm) | Fe (ppm) | B (ppm) | S.Salts (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|
| Result | 201 | 212 | 2058 | 324 | 10.2 | 5.6 | 1.5 | 59.0 | 0.3 | |
| Rating | VH | H | H+ | VH | SUFF | SUFF | SUFF | SUFF | SUFF | |

| Analysis | Soil pH | Buffer Index | Est.-CEC (meq/100g) | Acidity (%) | Base Sat. (%) | Ca Sat. (%) | Mg Sat. (%) | K Sat. (%) | Organic Matter (%) |
|---|---|---|---|---|---|---|---|---|---|
| Result | 6.0 | 6.22 | 7.8 | 13.7 | 86.3 | 65.8 | 17.1 | 3.5 | |

FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Corn (Grain), Conventional Till (2)

| Lime, TONS/AC | | Fertilizer, lb/A | | |
|---|---|---|---|---|
| Amount | Type | N | P205 | K20 |
| 1.25 | AG | 140 | 0 | 30 |

**890. Soil Survey map unit information was not provided or did not match our computer database, neither was a field Yield estimate given. As a result only generalized fertilizer recommendations could be made. Field specific and more scientifically- based recommendations can be provided if soil map unit information is included in the future. Contact your extension agent to learn how to obtain available soil survey information for your farm.**

**990. We are trying to improve our service. PLEASE take a moment to complete our brief, anonymous customer survey at tinyurl.com/soiltestsurvey**

**801. The most effective method of application of low rates of phosphate and potash is in a starter (planter) fertilizer placed in a band 2 inches to one side and 2 inches below the seed. Total amount of nitrogen plus potash should not exceed 80 lbs/A.**

# *Virginia Cooperative Extension*

## Soil Test Report

**Northampton County Office**
7247 Young Street, Suite A
Machipongo, VA 23405
757-678-7946

**Virginia Tech Soil Testing Laboratory**
145 Smyth Hall (0465)
Blacksburg, VA 24061
www.soiltest.vt.edu

**SEE ENCLOSED NOTES:**
1 2

OWNER
SMITH A G
3160 JACOBIA LANE

CAPE CHARLES, VA 23310

COPY FOR

**SAMPLE HISTORY**

| Sample ID | Field ID | LAST CROP | | LAST LIME APPLICATION | | SOIL INFORMATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Name | Yield | Months Prev. | Tons/Acre | SMU-1 % | SMU-2 % | SMU-3 % | Yield Estimate | Productivity Group |
| 24894 | WEATHERLY | | | | | | | | | IIb |

**LAB TEST RESULTS (see Note 1)**

| Analysis | P (lb/A) | K (lb/A) | Ca (lb/A) | Mg (lb/A) | Zn (ppm) | Mn (ppm) | Cu (ppm) | Fe (ppm) | B (ppm) | S.Salts (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|
| Result | 201 | 233 | 1958 | 296 | 10.9 | 5.1 | 1.6 | 59.4 | 0.3 | |
| Rating | VH | H | H+ | VH | SUFF | SUFF | SUFF | SUFF | SUFF | |

| Analysis | Soil pH | Buffer Index | Est.-CEC (meq/100g) | Acidity (%) | Base Sat. (%) | Ca Sat. (%) | Mg Sat. (%) | K Sat. (%) | Organic Matter (%) |
|---|---|---|---|---|---|---|---|---|---|
| Result | 6.0 | 6.18 | 7.7 | 16.9 | 83.1 | 63.4 | 15.8 | 3.9 | |

**FERTILIZER AND LIMESTONE RECOMMENDATIONS**

Crop: Corn (Grain), Conventional Till (2)

| Lime, TONS/AC | | Fertilizer, lb/A | | |
|---|---|---|---|---|
| Amount | Type | N | P205 | K20 |
| 1.5 | AG | 140 | 0 | 30 |

**890. Soil Survey map unit information was not provided or did not match our computer database, neither was a field Yield estimate given. As a result only generalized fertilizer recommendations could be made. Field specific and more scientifically- based recommendations can be provided if soil map unit information is included in the future. Contact your extension agent to learn how to obtain available soil survey information for your farm.**

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COPY FOR

SAMPLE HISTORY

| Sample ID | Field ID | LAST CROP | | LAST LIME APPLICATION | | SOIL INFORMATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Name | Yield | Months Prev. | Tons/Acre | SMU-1 % | SMU-2 % | SMU-3 % | Yield Estimate | Productivity Group |
| 24893 | WEATHERLY | | | | | | | | | IIb |

LAB TEST RESULTS (see Note 1)

| Analysis | P (lb/A) | K (lb/A) | Ca (lb/A) | Mg (lb/A) | Zn (ppm) | Mn (ppm) | Cu (ppm) | Fe (ppm) | B (ppm) | S.Salts (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|
| Result | 185 | 188 | 1902 | 299 | 9.5 | 4.6 | 1.4 | 57.0 | 0.3 | |
| Rating | VH | H- | H | VH | SUFF | SUFF | SUFF | SUFF | SUFF | |

| Analysis | Soil pH | Buffer Index | Est.-CEC (meq/100g) | Acidity (%) | Base Sat. (%) | Ca Sat. (%) | Mg Sat. (%) | K Sat. (%) | Organic Matter (%) |
|---|---|---|---|---|---|---|---|---|---|
| Result | 5.9 | 6.21 | 7.3 | 15.4 | 84.7 | 64.6 | 16.8 | 3.3 | |

FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Corn (Grain), Conventional Till (2)

| Lime, TONS/AC | | Fertilizer, lb/A | | |
|---|---|---|---|---|
| Amount | Type | N | P205 | K20 |
| 1.25 | AG | 140 | 0 | 40 |

**890. Soil Survey map unit information was not provided or did not match our computer database, neither was a field Yield estimate given. As a result only generalized fertilizer recommendations could be made. Field specific and more scientifically- based recommendations can be provided if soil map unit information is included in the future. Contact your extension agent to learn how to obtain available soil survey information for your farm.**

**990. We are trying to improve our service. PLEASE take a moment to complete our brief, anonymous customer survey at tinyurl.com/soiltestsurvey**

**801. The most effective method of application of low rates of phosphate and potash is in a starter (planter) fertilizer placed in a band 2 inches to one side and 2 inches below the seed. Total amount of nitrogen plus potash should not exceed 80 lbs/A.**

# *Virginia Cooperative Extension*

## Soil Test Report

Northampton County Office
7247 Young Street, Suite A
Machipongo, VA 23405
757-678-7946

Virginia Tech Soil Testing Laboratory
145 Smyth Hall (0465)
Blacksburg, VA 24061
www.soiltest.vt.edu

SEE ENCLOSED NOTES:
1 2

OWNER
SMITH A G
3160 JACOBIA LANE

CAPE CHARLES, VA 23310

COPY FOR

SAMPLE HISTORY

| Sample ID | Field ID | LAST CROP | | LAST LIME APPLICATION | | SOIL INFORMATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Name | Yield | Months Prev. | Tons/Acre | SMU-1 % | SMU-2 % | SMU-3 % | Yield Estimate | Productivity Group |
| 24892 | WEATHERLY | | | | | | | | | IIb |

0 - 10

LAB TEST RESULTS (see Note 1)

| Analysis | P (lb/A) | K (lb/A) | Ca (lb/A) | Mg (lb/A) | Zn (ppm) | Mn (ppm) | Cu (ppm) | Fe (ppm) | B (ppm) | S.Salts (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|
| Result | 169 | 190 | 1446 | 210 | 11.7 | 5.3 | 1.9 | 84.7 | 0.2 | |
| Rating | VH | H- | H- | H+ | SUFF | SUFF | SUFF | SUFF | SUFF | |

| Analysis | Soil pH | Buffer Index | Est.-CEC (meq/100g) | Acidity (%) | Base Sat. (%) | Ca Sat. (%) | Mg Sat. (%) | K Sat. (%) | Organic Matter (%) |
|---|---|---|---|---|---|---|---|---|---|
| Result | 5.3 | 6.04 | 6.9 | 31.2 | 68.8 | 52.7 | 12.6 | 3.6 | |

FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Corn (Grain), Conventional Till (2)

| Lime, TONS/AC | | Fertilizer, lb/A | | |
|---|---|---|---|---|
| Amount | Type | N | P205 | K20 |
| 2.25 | AG | 140 | 0 | 40 |

**890. Soil Survey map unit information was not provided or did not match our computer database, neither was a field Yield estimate given. As a result only generalized fertilizer recommendations could be made. Field specific and more scientifically- based recommendations can be provided if soil map unit information is included in the future. Contact your extension agent to learn how to obtain available soil survey information for your farm.**

**990. We are trying to improve our service. PLEASE take a moment to complete our brief, anonymous customer survey at tinyurl.com/soiltestsurvey**

**801. The most effective method of application of low rates of phosphate and potash is in a starter (planter) fertilizer placed in a band 2 inches to one side and 2 inches below the seed. Total amount of nitrogen plus potash should not exceed 80 lbs/A.**

Lab ID: 10-56783 2010-12-14 NORTHAMPTON / 131

# *Virginia Cooperative Extension*
## Soil Test Report


**Northampton County Office**
7247 Young Street, Suite A
Machipongo, VA 23405
757-678-7946

**Virginia Tech Soil Testing Laboratory**
145 Smyth Hall (0465)
Blacksburg, VA 24061
www.soiltest.vt.edu


SEE ENCLOSED NOTES:
1 2

OWNER
SMITH A G
3160 JACOBIA LANE

CAPE CHARLES, VA 23310

COPY FOR

**SAMPLE HISTORY**

| Sample ID | Field ID | LAST CROP | | LAST LIME APPLICATION | | SOIL INFORMATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Name | Yield | Months Prev. | Tons/Acre | SMU-1 % | SMU-2 % | SMU-3 % | Yield Estimate | Productivity Group |
| 24891 | WEATHERLY | | | | | | | | | IIb |

1-5

**LAB TEST RESULTS (see Note 1)**

| Analysis | P (lb/A) | K (lb/A) | Ca (lb/A) | Mg (lb/A) | Zn (ppm) | Mn (ppm) | Cu (ppm) | Fe (ppm) | B (ppm) | S.Salts (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|
| Result | 171 | 197 | 1567 | 223 | 11.6 | 5.8 | 1.8 | 81.9 | 0.2 | |
| Rating | VH | H- | H- | VH | SUFF | SUFF | SUFF | SUFF | SUFF | |

| Analysis | Soil pH | Buffer Index | Est.-CEC (meq/100g) | Acidity (%) | Base Sat. (%) | Ca Sat. (%) | Mg Sat. (%) | K Sat. (%) | Organic Matter (%) |
|---|---|---|---|---|---|---|---|---|---|
| Result | 5.5 | 6.05 | 7.2 | 29.0 | 71.0 | 54.6 | 12.8 | 3.5 | |

**FERTILIZER AND LIMESTONE RECOMMENDATIONS**

Crop: Corn (Grain), Conventional Till (2)

| Lime, TONS/AC | | Fertilizer, lb/A | | |
|---|---|---|---|---|
| Amount | Type | N | P205 | K20 |
| 2.25 | AG | 140 | 0 | 40 |

**890. Soil Survey map unit information was not provided or did not match our computer database, neither was a field Yield estimate given. As a result only generalized fertilizer recommendations could be made. Field specific and more scientifically- based recommendations can be provided if soil map unit information is included in the future. Contact your extension agent to learn how to obtain available soil survey information for your farm.**

**990. We are trying to improve our service. PLEASE take a moment to complete our brief, anonymous customer survey at tinyurl.com/soiltestsurvey**

**801. The most effective method of application of low rates of phosphate and potash is in a starter (planter) fertilizer placed in a band 2 inches to one side and 2 inches below the seed. Total amount of nitrogen plus potash should not exceed 80 lbs/A.**

# Manure Spreading Summary

| Season | Manure | Rate/ac | Tract | Field | Acres | Crop | Total in Field | Running Total |
|---|---|---|---|---|---|---|---|---|
| 2011Sp | HRSD | 12.7 tons | 2489 | 1-5 | 25 | Corn (grain) | 318 tons | 318 tons |
| | | 13.1 tons | 2489 | 8-10 | 21 | Corn (grain) | 272 tons | 590 tons |
| | | 11.3 tons | 2489 | 11-13 | 24 | Corn (grain) | 270 tons | 860 tons |
| | | 9.4 tons | 2489 | 14-15 | 17 | Corn (grain) | 161 tons | 1021 tons |
| | | 9.4 tons | 2489 | 16-18 | 22 | Corn (grain) | 205 tons | 1226 tons |

# HRSD
# Hampton Roads Sanitation District

## Laboratory Nutrient and Metal Data

**8/1/2010 to 10/31/2010**

**Dewatered** **Dewatered Nutri-Green for Private Site Application**

| | % | | | | | Mg/Kg | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | CACO3 | TS | TVS | S | pH | NH4 | Org | P | K | Cd | Cr | Cu | Pb | Ni | Zn | As | Mo | Se | Mn | Mg | Hg |
| 04-Aug-10 | 3.40 | 18.70 | 68.00 | 1.84 | 8.26 | 17,100 | 56,500 | 34,600 | 2,390 | 5 | 87 | 87 | 29 | 14 | 1,390 | 14 | 11 | 3 | 292 | 6,130 | 1 |
| 01-Sep-10 | 5.60 | 18.10 | 67.00 | 2.09 | 8.43 | 17,000 | 49,100 | 34,200 | 2,870 | 4 | 127 | 357 | 34 | 14 | 1,370 | 14 | 9 | 6 | 381 | 7,130 | 2 |
| 06-Oct-10 | 5.90 | 18.10 | 67.00 | 1.87 | 8.56 | 13,500 | 57,400 | 37,800 | 2,840 | 3 | 119 | 353 | 34 | 14 | 1,460 | 14 | 9 | 6 | 397 | 6,200 | 1 |

| | % | | | | | Mg/Kg | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CACO3 | TS | TVS | S | pH | NH4 | Org | P | K | Cd | Cr | Cu | Pb | Ni | Zn | As | Mo | Se | Mn | Mg | Hg |
| Mean | 4.97 | 18.30 | 67.33 | 1.93 | 8.42 | 15,867 | 54,333 | 35,500 | 2,700 | 4 | 111 | 266 | 32 | 14 | 1,407 | 14 | 10 | 5 | 357 | 6,487 | 1 |
| Std | 1.37 | 0.35 | 0.58 | 0.14 | 0.15 | 2,050 | 4,554 | 1,997 | 269 | 1 | 21 | 155 | 3 | 0 | 47 | 0 | 1 | 2 | 57 | 558 | 0 |
| Max | 5.90 | 18.70 | 68.00 | 2.09 | 8.56 | 17,100 | 57,400 | 37,800 | 2,870 | 5 | 127 | 357 | 34 | 14 | 1,460 | 14 | 11 | 6 | 397 | 7,130 | 2 |
| Min | 3.4 | 18.10 | 67.00 | 1.84 | 8.26 | 13,500 | 49,100 | 34,200 | 2,390 | 3 | 87 | 87 | 29 | 14 | 1,370 | 14 | 9 | 3 | 292 | 6,130 | 1 |

## DOSAGE RATE EVALUATION
## HRSD - ATLANTIC WWTP
## NUTRI-GREEN® BIOSOLIDS

### REPORTING PERIOD: 04-Aug-10 to 06-Oct-10

| PARAMETER | ppm | lbs/dt | Year 1 | year 2 | year 3 |
|---|---|---|---|---|---|
| Org-N | 54333 | 108.67 | | | |
| NH4-N | 15867 | 31.73 | | | |
| PAN (Incorporated within 24 hrs) | 26808 | 53.62 | 53.62 | 9.78 | 9.78 |
| PAN (Incorporated 1-7 days) | 24666 | 49.33 | | | |
| PAN (Surface Application) | 21810 | 43.62 | | | |
| Phosphorus (P) | 35500 | 71.00 | | | |
| Phosphate ($P_2O_5$) | 81295 | 162.59 | 53.65 | 35.77 | 24.39 |
| Potassium (K) | 2700 | 5.40 | | | |
| Potash ($K_2O$) | 3240 | 6.48 | | | |
| Sulfur (S) | 19300 | 38.60 | | | |
| Magnesium (Mg) | 3950 | 7.90 | | | |
| Manganese (Mn) | 357 | 0.71 | | | |
| Molybdenum (Mo) | 10 | 0.02 | | | |
| Liming Potential ($CaCO_3$) | 4970 | 9.94 | | | |
| Zinc (Zn) | 1407 | 2.81 | | | |
| Copper (Cu) | 266 | 0.53 | | | |
| Arsenic (As) | 14 | 0.03 | | | |
| Cadmium (Cd) | 4 | 0.01 | | | |
| Chromium (Cr) | 111 | 0.22 | | | |
| Lead (Pb) | 32 | 0.06 | | | |
| Mercury (Hg) | 1 | 0.00 | | | |
| Nickel (Ni) | 14 | 0.03 | | | |
| Selenium (Se) | 5 | 0.01 | | | |

PA-N (Surface) is calculated using 30% mineralization of the organic fraction, 50% of the non-volatilized ammonia fraction for surface application, and a 10% denitrification factor . PA-N (Incorporation) is calculated using a 30% mineralization of the organic fraction, 70% of the non-volatilized ammonia fraction for the incorporated application and a 10% denitrification factor.

PA-N (Incorporation 24hrs) is calculated using a 30% mineralization of the organic fraction, 85% of the non-volatilized ammonia fraction for the incorporated application and a 10% denitrification factor.

Phosphate is calculated using 33% of the total as being available the first year.

**Nutrient Value**
**HRSD Atlantic WWTP**

**Site: F-1790** **T-2489** 2/19, 2/21/2011 **Acres: 108.6**
**2.1** dry tons applied per acre

| | | Lbs/DT | $/lb | $Value/DT | $/Ac |
|---|---|---|---|---|---|
| Nitrogen | PA-N | 53.62 | 0.5 | 26.810 | 56.301 |
| Phosphate | P2O5 | 53.65 | 0.6 | 32.190 | 67.599 |
| Potash | K2O | 6.48 | 0.313 | 2.028 | 4.259304 |
| Sulfur | S | 38.6 | 0.19 | 7.334 | 15.4014 |
| Magnesium | Mg | 7.9 | 0.3 | 2.370 | 4.977 |
| Manganese | Mn | 0.71 | 1.896 | 1.346 | 2.826936 |
| Copper | Cu | 0.53 | 4.17 | 2.210 | 4.64121 |
| Zinc | Zn | 2.81 | 1.444 | 4.058 | 8.521044 |
| | | | | | |
| Lime* | CaCO3 | 9.94 | 0.023 | 0.229 | 0.480102 |
| | | | | | |
| 1st year Total Value | | | | **$78.57** | **$165.01** |
| | | | | | |
| | | | | | |
| **2nd Year** | | | | | |
| Nitrogen | PA-N | 9.78 | 0.25 | 2.445 | 5.1345 |
| Phosphate | P2O5 | 35.77 | 0.4 | 14.308 | 30.0468 |
| | | | | | |
| 2nd year Total Value | | | | **$14.31** | **$35.18** |
| | | | | | |
| **3rd Year** | | | | | |
| Nitrogen | PA-N | 9.78 | 0.25 | 2.445 | 5.1345 |
| Phosphate | P2O5 | 24.39 | 0.4 | 9.756 | 20.4876 |
| | | | | | |
| 3rd year Total Value | | | | **$12.20** | **$25.62** |

*This value only includes liming potential from the Nutri-Green Biosolids. The $ value from any additional lime applied to this site by HRSD through Ag. Nutrients, Inc. would be added to this total.

# HRSD
# Hampton Roads Sanitation District

## Quantity Report

**T - 241 T - 2489** **1/1/2011 to 3/7/2011**

| Date | Source | Field - Tract | Tons Gross WT | Tons Tare WT | Net WT ( Wet ) | Net WT ( Dry ) | TS ( % ) | Ticket Number |
|---|---|---|---|---|---|---|---|---|
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 16.76 | 2.92 | 17.40 | 14580 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 20.99 | 3.65 | 17.40 | 14581 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 18.93 | 3.29 | 17.40 | 14582 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 17.11 | 2.98 | 17.40 | 14583 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 18.01 | 3.13 | 17.40 | 14584 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 17.26 | 3.00 | 17.40 | 14585 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 17.79 | 3.10 | 17.40 | 14587 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 17.56 | 3.06 | 17.40 | 14588 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 18.00 | 3.13 | 17.40 | 14589 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 20.41 | 3.55 | 17.40 | 14590 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 18.97 | 3.30 | 17.40 | 14591 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 19.55 | 3.40 | 17.40 | 14592 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 19.34 | 3.37 | 17.40 | 14594 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 20.01 | 3.48 | 17.40 | 14595 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 17.02 | 2.96 | 17.40 | 14596 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 17.06 | 2.97 | 17.40 | 14597 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 19.83 | 3.45 | 17.40 | 14598 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 17.03 | 2.96 | 17.40 | 14599 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 19.13 | 3.33 | 17.40 | 14600 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 15.82 | 2.75 | 17.40 | 14601 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 19.40 | 3.38 | 17.40 | 14602 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 19.78 | 3.44 | 17.40 | 14603 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 17.46 | 3.04 | 17.40 | 14605 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 18.48 | 3.22 | 17.40 | 14606 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 16.04 | 2.79 | 17.40 | 14607 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 18.14 | 3.16 | 17.40 | 14608 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 19.63 | 3.42 | 17.40 | 14609 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 16.85 | 2.93 | 17.40 | 14610 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 18.53 | 3.22 | 17.40 | 14611 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 20.90 | 3.64 | 17.40 | 14612 |
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 19.23 | 3.35 | 17.40 | 14614 |

# HRSD
# Hampton Roads Sanitation District

## Quantity Report

**T - 241 T - 2489** **1/1/2011 to 3/7/2011**

| Date | Source | Field - Tract | Tons Gross WT | Tons Tare WT | Tons Net WT ( Wet ) | Tons Net WT ( Dry ) | TS ( % ) | Ticket Number |
|---|---|---|---|---|---|---|---|---|
| 28-Feb-11 | Atlantic | T - 2489 1 - T - 2489 1 | | | 18.78 | 3.27 | 17.40 | 14615 |
| **Total for Source** | **Atlantic** | | | | **589.80** | **102.63** | | |
| **Total for Tract** | | **T - 2489 1 - T - 2489 1** | | | **589.80** | **102.63** | | |
| **Average for Tract** | | | | | **18.43** | **3.21** | | |
| **Application Rate** | | | | | **12.31** | **2.14** | | |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 20.22 | 3.52 | 17.40 | 14547 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 20.71 | 3.60 | 17.40 | 14548 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 16.20 | 2.82 | 17.40 | 14549 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 19.10 | 3.32 | 17.40 | 14551 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 20.34 | 3.54 | 17.40 | 14552 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 15.89 | 2.76 | 17.40 | 14553 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 17.85 | 3.11 | 17.40 | 14554 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 16.16 | 2.81 | 17.40 | 14555 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 17.70 | 3.08 | 17.40 | 14556 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.35 | 3.19 | 17.40 | 14557 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 20.29 | 3.53 | 17.40 | 14558 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 19.78 | 3.44 | 17.40 | 14559 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.21 | 3.17 | 17.40 | 14560 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.31 | 3.19 | 17.40 | 14561 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 19.79 | 3.44 | 17.40 | 14562 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.61 | 3.24 | 17.40 | 14563 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 15.44 | 2.69 | 17.40 | 14565 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 19.36 | 3.37 | 17.40 | 14566 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.22 | 3.17 | 17.40 | 14567 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 22.50 | 3.92 | 17.40 | 14568 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 21.10 | 3.67 | 17.40 | 14569 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 20.63 | 3.59 | 17.40 | 14570 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.21 | 3.17 | 17.40 | 14571 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 19.05 | 3.31 | 17.40 | 14572 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.25 | 3.18 | 17.40 | 14573 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 20.29 | 3.53 | 17.40 | 14574 |
| 26-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.54 | 3.23 | 17.40 | 14575 |

# HRSD
# Hampton Roads Sanitation District

## Quantity Report

**T - 24( T - 2489** **1/1/2011 to 3/7/2011**

| Date | Source | Field - Tract | Tons Gross WT | Tons Tare WT | Net WT ( Wet ) | Net WT ( Dry ) | TS ( % ) | Ticket Number |
|---|---|---|---|---|---|---|---|---|
| 28-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 20.13 | 3.50 | 17.40 | 14576 |
| 28-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 18.23 | 3.17 | 17.40 | 14577 |
| 28-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 19.43 | 3.38 | 17.40 | 14578 |
| 28-Feb-11 | Atlantic | T - 2489 2 - T - 2489 2 | | | 17.16 | 2.99 | 17.40 | 14579 |
| **Total for Source** | **Atlantic** | | | | **584.05** | **101.62** | | |
| **Total for Tract** | | **T - 2489 2 - T - 2489 2** | | | **584.05** | **101.62** | | |
| **Average for Tract** | | | | | **18.84** | **3.28** | | |
| **Application Rate** | | | | | **8.94** | **1.56** | | |
| **Report Total** | | | | | **1,173.85** | **204.25** | | |

503 Required Report

Applier

# POLLUTANT LOADING

## 2011

**Site Information:**

**Site:** T - 2489 T - 2489 **Latitude** **Longitude**

**Address:** 1953 Long Ridge Road 0.0 0.0

Chesapeake Virginia 23322

**Contact:** O. Glenn Weatherly ( 757 ) 421 - 3005 Ext:

**Field and Tract Information:**

**Field:** T - 2489 1 F 1-10

**Tract:** T - 2489 1 F 1- 10 Weatherly **Area:** 19.385 Hectare

**Creation Date:** Apr-08-2004 **End Date:** Feb-28-2011 47.900 Acres

| Compound | | Baseline | Previous | Current | Total | Limit | Units | Percent | Violation |
|---|---|---|---|---|---|---|---|---|---|
| AS | Arsenic | | 0.26 | 0.07 | 0.33 | 41.00 | kgs/ha | 0.80% | |
| CD | Cadmium | | 0.06 | 0.02 | 0.08 | 39.00 | kgs/ha | 0.22% | |
| CU | Copper | | 8.74 | 1.70 | 10.44 | 1500.00 | kgs/ha | 0.70% | |
| HG | Mercury | | 0.04 | 0.00 | 0.05 | 17.00 | kgs/ha | 0.27% | |
| NI | Nickel | | 0.28 | 0.07 | 0.35 | 420.00 | kgs/ha | 0.08% | |
| PB | Lead | | 0.82 | 0.14 | 0.96 | 300.00 | kgs/ha | 0.32% | |
| SE | Selenium | | 0.11 | 0.03 | 0.14 | 100.00 | kgs/ha | 0.14% | |
| ZN | Zinc | | 29.39 | 8.60 | 37.99 | 2800.00 | kgs/ha | 1.36% | |

503 Required Report

Applier

# SITE INFORMATION AND APPLICATION REPORT

## 2011

**Site Information:**

**Site:** T - 2489 T - 2489 **Latitude** **Longitude**

**Address:** 1953 Long Ridge Road 0.0 0.0

Chesapeake Virginia 23322

**Contact:** O. Glenn Weatherly ( 757 ) 421 - 3005 Ext:

**Field and Tract Information:**

**Field:** T - 2489 1 F 1-10

**Tract:** T - 2489 1 F 1- 10 Weatherly **Area:** 19.385 Hectare

**Creation Date:** Apr-08-2004 **End Date:** Feb-28-2011 47.900 Acres

**Crop Information:**

**Crop:** Corn

**Calculated Biosolids PAN:** 53.63613 Lbs/Ton

| Date | Source | Wet Quantity | Units | TS | Dry Metric Tons | Application Method |
|---|---|---|---|---|---|---|
| 28-feb-2011 | Atlantic | 16.76 | Wettons | 17.40% | 2.65 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 16.85 | Wettons | 17.40% | 2.67 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.02 | Wettons | 17.40% | 2.69 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.03 | Wettons | 17.40% | 2.69 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.06 | Wettons | 17.40% | 2.70 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.11 | Wettons | 17.40% | 2.71 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.26 | Wettons | 17.40% | 2.73 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.46 | Wettons | 17.40% | 2.76 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.56 | Wettons | 17.40% | 2.78 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.79 | Wettons | 17.40% | 2.81 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 18.00 | Wettons | 17.40% | 2.85 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 18.01 | Wettons | 17.40% | 2.85 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 18.14 | Wettons | 17.40% | 2.87 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 18.48 | Wettons | 17.40% | 2.92 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 18.53 | Wettons | 17.40% | 2.93 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 18.78 | Wettons | 17.40% | 2.97 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 18.93 | Wettons | 17.40% | 2.99 | SA w/inc. <24hrs |

503 Required Report

Applier

# SITE INFORMATION AND APPLICATION REPORT

## 2011

**Site Information:**

**Site:** T - 2489 T - 2489 **Latitude** **Longitude**

**Address:** 1953 Long Ridge Road 0.0 0.0

Chesapeake Virginia 23322

**Contact:** O. Glenn Weatherly ( 757 ) 421 - 3005 Ext:

**Field and Tract Information:**

**Field:** T - 2489 1 F 1-10

**Tract:** T - 2489 1 F 1- 10 Weatherly **Area:** 19.385 Hectare

**Creation Date:** Apr-08-2004 **End Date:** Feb-28-2011 47.900 Acres

| Date | Source | Wet Quantity | Units | TS | Dry Metric Tons | Application Method |
|---|---|---|---|---|---|---|
| 28-feb-2011 | Atlantic | 18.97 | Wettons | 17.40% | 3.00 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.13 | Wettons | 17.40% | 3.03 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.23 | Wettons | 17.40% | 3.04 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.34 | Wettons | 17.40% | 3.06 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.40 | Wettons | 17.40% | 3.07 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.55 | Wettons | 17.40% | 3.09 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.63 | Wettons | 17.40% | 3.11 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.78 | Wettons | 17.40% | 3.13 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.83 | Wettons | 17.40% | 3.14 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 20.01 | Wettons | 17.40% | 3.17 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 20.41 | Wettons | 17.40% | 3.23 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 20.90 | Wettons | 17.40% | 3.31 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 20.99 | Wettons | 17.40% | 3.32 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 15.82 | Wettons | 17.40% | 2.50 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 16.04 | Wettons | 17.40% | 2.54 | SA w/inc. <24hrs |
| **Total:** | | **589.80** | | | **93.30** | |
| **Average:** | | | | **17.40%** | | |

Agronomic Whole Biosolids Application Rate = 2.14 Tons/Acre

503 Required Report

Applier

# POLLUTANT LOADING

## 2011

**Site Information:**

**Site:** T - 2489 T - 2489 **Latitude** **Longitude**

**Address:** 1953 Long Ridge Road 0.0 0.0

Chesapeake Virginia 23322

**Contact:** O. Glenn Weatherly ( 757 ) 421 - 3005 Ext:

**Field and Tract Information:**

**Field:** T - 2489 2 F 11 - 17

**Tract:** T - 2489 2 F 11 -17 Weatherly **Area:** 26.427 Hectare

**Creation Date:** Apr-08-2004 **End Date:** Feb-28-2011 65.300 Acres

| Compound | | Baseline | Previous | Current | Total | Limit | Units | Percent | Violation |
|---|---|---|---|---|---|---|---|---|---|
| AS | Arsenic | | 0.27 | 0.05 | 0.31 | 41.00 | kgs/ha | 0.77% | |
| CD | Cadmium | | 0.06 | 0.02 | 0.08 | 39.00 | kgs/ha | 0.20% | |
| CU | Copper | | 8.83 | 1.24 | 10.06 | 1500.00 | kgs/ha | 0.67% | |
| HG | Mercury | | 0.04 | 0.00 | 0.04 | 17.00 | kgs/ha | 0.26% | |
| NI | Nickel | | 0.29 | 0.05 | 0.34 | 420.00 | kgs/ha | 0.08% | |
| PB | Lead | | 0.83 | 0.10 | 0.93 | 300.00 | kgs/ha | 0.31% | |
| SE | Selenium | | 0.11 | 0.02 | 0.13 | 100.00 | kgs/ha | 0.13% | |
| ZN | Zinc | | 29.69 | 6.24 | 35.94 | 2800.00 | kgs/ha | 1.28% | |

503 Required Report

Applier

# SITE INFORMATION AND APPLICATION REPORT

## 2011

**Site Information:**

**Site:** T - 2489 T - 2489 **Latitude** **Longitude**

**Address:** 1953 Long Ridge Road 0.0 0.0

Chesapeake Virginia 23322

**Contact:** O. Glenn Weatherly ( 757 ) 421 - 3005 Ext:

**Field and Tract Information:**

**Field:** T - 2489 2 F 11 - 17

**Tract:** T - 2489 2 F 11 -17 Weatherly **Area:** 26.427 Hectare

**Creation Date:** Apr-08-2004 **End Date:** Feb-28-2011 65.300 Acres

**Crop Information:**

**Crop:** Corn

**Calculated Biosolids PAN:** 53.63613 Lbs/Ton

| Date | Source | Wet Quantity | Units | TS | Dry Metric Tons | Application Method |
|---|---|---|---|---|---|---|
| 26-feb-2011 | Atlantic | 16.16 | Wettons | 17.40% | 2.56 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 18.21 | Wettons | 17.40% | 2.88 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 21.10 | Wettons | 17.40% | 3.34 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 17.70 | Wettons | 17.40% | 2.80 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 17.85 | Wettons | 17.40% | 2.82 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 18.61 | Wettons | 17.40% | 2.94 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 18.21 | Wettons | 17.40% | 2.88 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 15.89 | Wettons | 17.40% | 2.51 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 22.50 | Wettons | 17.40% | 3.56 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 18.25 | Wettons | 17.40% | 2.89 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 18.31 | Wettons | 17.40% | 2.90 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 18.35 | Wettons | 17.40% | 2.90 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 16.20 | Wettons | 17.40% | 2.56 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 20.71 | Wettons | 17.40% | 3.28 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 19.05 | Wettons | 17.40% | 3.01 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 19.10 | Wettons | 17.40% | 3.02 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 19.36 | Wettons | 17.40% | 3.06 | SA w/inc. <24hrs |

503 Required Report

Applier

# SITE INFORMATION AND APPLICATION REPORT

## 2011

**Site Information:**

**Site:** T - 2489 T - 2489 **Latitude** **Longitude**

**Address:** 1953 Long Ridge Road 0.0 0.0

Chesapeake Virginia 23322

**Contact:** O. Glenn Weatherly ( 757 ) 421 - 3005 Ext:

**Field and Tract Information:**

**Field:** T - 2489 2 F 11 - 17

**Tract:** T - 2489 2 F 11 -17 Weatherly **Area:** 26.427 Hectare

**Creation Date:** Apr-08-2004 **End Date:** Feb-28-2011 65.300 Acres

| Date | Source | Wet Quantity | Units | TS | Dry Metric Tons | Application Method |
|---|---|---|---|---|---|---|
| 26-feb-2011 | Atlantic | 18.22 | Wettons | 17.40% | 2.88 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 19.78 | Wettons | 17.40% | 3.13 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 19.79 | Wettons | 17.40% | 3.13 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 15.44 | Wettons | 17.40% | 2.44 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 20.22 | Wettons | 17.40% | 3.20 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 20.29 | Wettons | 17.40% | 3.21 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 20.29 | Wettons | 17.40% | 3.21 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 20.34 | Wettons | 17.40% | 3.22 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 20.63 | Wettons | 17.40% | 3.26 | SA w/inc. <24hrs |
| 26-feb-2011 | Atlantic | 18.54 | Wettons | 17.40% | 2.93 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 17.16 | Wettons | 17.40% | 2.71 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 19.43 | Wettons | 17.40% | 3.07 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 18.23 | Wettons | 17.40% | 2.88 | SA w/inc. <24hrs |
| 28-feb-2011 | Atlantic | 20.13 | Wettons | 17.40% | 3.18 | SA w/inc. <24hrs |
| **Total:** | | **584.05** | | | **92.39** | |
| **Average:** | | | | **17.40%** | | |

Agronomic Whole Biosolids Application Rate = 1.56 Tons/Acre

503 Required Report

# APPLIER CERTIFICATION

## 2011

**SITE** T - 9373

**Source Name:** 3-Month Rolling Average For Dewatered Nt

**Source Period:** Jan-01-1997 to Jan-31-2020

I certify, under penalty of law, that the management practices in 503.14, the site restrictions in 503.32(b)(5) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Signature : Christy J Smith Date : 3/8/2011

PATHOGEN REDUCTION B

VAR METHOD 1

LIMIT TYPE APL

9. Incineration. *Alternative Emergency Plan*

**(Complete Question 9 if sewage sludge from your facility is fired in a sewage sludge incinerator.)**

a. Total dry metric tons per 365-day period of sewage sludge from your facility fired in a sewage sludge incinerator: 0 dry metric tons 2010 estimate

b. Do you own or operate all sewage sludge incinerators in which sewage sludge from your facility is fired? X Yes ___No
If no, answer questions c - g for each sewage sludge incinerator that you do not own or operate. If you send sewage sludge to more than one sewage sludge incinerator, attach additional pages as necessary.

c. Incinerator name or number:

d. Contact person:
Title:
Phone: ( )
Contact is: ___Incinerator Owner ___Incinerator Operator

e. Mailing address.
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

f. Total dry metric tons per 365-day period of sewage sludge from your facility fired in this sewage sludge incinerator: _____ dry metric tons

g. List on this form or an attachment the numbers of all other federal, state or local permits that regulate the firing of sewage sludge at this incinerator:

| Permit Number: | Type of Permit: |
|---|---|
| | |

10. Disposal in a Municipal Solid Waste Landfill. *Alternative Emergency Plan*

**(Complete Question 10 if sewage sludge from your facility is placed on a municipal solid waste landfill. Provide the following information for each municipal solid waste landfill on which sewage sludge from your facility is placed. If sewage sludge is placed on more than one municipal solid waste landfill, attach additional pages as necessary.)**

a. Landfill name: Bethel Landfill

b. Contact person: Howard Burns
Title: Landfill Supervisor
Phone: (757)766-3033
Contact is: X Landfill Owner ___Landfill Operator

c. Mailing address.
Street or P.O. Box: 100 North Park Lane
City or Town: Hampton State: VA Zip: 23666

d. Landfill location.
Street or Route #: 100 North Park Lane
County:
City or Town: Hampton State: VA Zip: 23666

e. Total dry metric tons per 365-day period of sewage sludge placed in this municipal solid waste landfill: 0 dry metric tons 2010 estimate

f. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the operation of this municipal solid waste landfill:

| Permit Number: | Type of Permit: |
|---|---|
| 580 | DEQ- Solid Waste Division |

g. Does sewage sludge meet applicable requirements in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq., concerning the quality of materials disposed in a municipal solid waste landfill? X Yes ___No

h. Does the municipal solid waste landfill comply with all applicable criteria set forth in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq.? X Yes ___No

i. Will the vehicle bed or other container used to transport sewage sludge to the municipal solid waste landfill be watertight and covered? X Yes ___ No
Show the haul route(s) on a location map or briefly describe the route below and indicate the days of the week and time of the day sewage sludge will be transported. Biosolids would be transported via General Booth Boulevard to 264 W. Follow 264 W to 64 W. Stay on 64 W until exit 261. Turn right on Big Bethel Road and turn left on North Park Lane. Transport would occur during daytime business hours of the landfill.

## SECTION C. LAND APPLICATION OF BULK SEWAGE SLUDGE

**Complete this section for sewage sludge that is land applied unless any of the following conditions apply:**
**The sewage sludge meets the Table 1 ceiling concentrations, the Table 3 pollutant concentrations, Class A pathogen requirements and one of the vector attraction reduction options 1-8 (fill out B.4 instead) (EQ Sludge); or**
**The sewage sludge is sold or given away in a bag or other container for application to the land (fill out B.5 instead); or**
**You provide the sewage sludge to another facility for treatment or blending (fill out B.6 instead).**
**Complete Section C for every site on which the sewage sludge that you reported in B.7 is land applied.**

1. Identification of Land Application Site. **See attachment for listing of permitted sites.**
   a. Site name or number:
   b. Site location (Complete i and ii)
      i. Street or Route#:
      County:
      City or Town: __State: _____ Zip:
      ii. Latitude:_____Longitude:
      Method of latitude/longitude determination
      _____ USGS map _____ Filed survey _____ Other
   b. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.

2. Owner Information.
   a. Are you the owner of this land application site? __Yes __X__No
   b. If no, provide the following information about the owner:
      Name:
      Street or P.O. Box:
      City or Town: _____ State:_____ Zip:
      Phone: ( )

3. Applier Information:
   a. Are you the person who applies, or who is responsible for application of, sewage sludge to this land application site? __X__Yes __No
   b. If no, provide the following information for the person who applies the sewage sludge:
      Name:
      Street or P.O. Box:
      City or Town:_____ State:_____ Zip:
      Phone: ( )
   c. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the person who applies sewage sludge to this land application site:

| Permit Number: | Type of Permit: |
|---|---|
| VA0081248 | VPDES |
| VAD980720353 | RCRA |
| 60959 | DEQ-Air Division |

4. Site Type. Identify the type of land application site from among the following:
   __X__Agricultural land __Reclamation site __Forest
   __Public contact site __Other. Describe

5. Vector Attraction Reduction.
   Are any vector attraction reduction requirements met when sewage sludge is applied to the land application site?
   ___Yes __X__No If yes, answer a and b.
   a. Indicate which vector attraction reduction option is met:
      __ Option 9 (Injection below land surface)
      __ Option 10 (Incorporation into soil within 6 hours)
   b. Describe, on this form or on another sheet of paper, any treatment processes used at the land application site to reduce the vector attraction properties of sewage sludge:

# PERMITTED LAND APPLICATION SITES



| Operator | City | Site | Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| | | | | | | |
| Arnold Dawley | Virginia Beach | T-200 | 166.8 | N 36° 43.130' | W 76° 2.899' | 3300 block West Neck (West) & 2413 Indian River (South) Roads |
| | | T-869 | 142.3 | N 36° 42.317' | W 76° 3.195' | 3500 block West Neck Road (West Side) |
| | | T-63 | 19.6 | N 36° 43.282' | W 76° 3.285' | 2500 block Indian River Road (South Side) |
| | | T-833 | 43.3 | N 36° 43.105' | W 76° 3.246' | 3200 block West Neck Road (West Side) |
| | Virginia Beach | T-210 | 54.9 | N 36° 44.626' | W 76° 3.764' | 2700 block West Neck Road (West Side) |
| | Virginia Beach | T-217 | 88.0 | N 36° 44.081' | W 76° 3.163' | 2852 block West Neck Road (Northeast Corner) |
| | | | **514.9** | | | |
| | | | | | | |
| Clifton Cutrell, Jr. | Chesapeake | T-202 | 406.1 | N 36° 35.501' | W 76° 9.495' | 3400 block Cedarville (East) & 1516 Indian Creek (North) Roads |
| | | | **406.1** | | | |
| | | | | | | |
| David Salmons | Chesapeake | T-1494 | 475.9 | N 36° 40.689' | W 76° 18.222' | Intersection Shillelagh & Atkinson Roads (Northwest Corner) |
| David Salmons | Virginia Beach | T-242 | 97.0 | N 36° 39.348' | W 76° 2.123' | Intersection Stowe Road North (North), Princess Anne (West) Roads |
| | | | **572.9** | | | |
| | | | | | | |
| Donald H. Horsley | Virginia Beach | T-9328 | 141.6 | N 36° 34.450' | W 76° 4.387' | 6152 Blackwater Road (East Side) Opposite West Gibbs Road |
| | | T-6 | 10.7 | N 36° 34.126' | W 76° 4.474' | 6152 Blackwater Road (East Side) Opposite West Gibbs Road |
| | | T-425 | 107.3 | N 36° 35.854' | W 76° 5.057' | 5720 Blackwater Road (East Side) Opposite Hungarian Road |
| | | T-423 | 135.5 | N 36° 34.337' | W 76° 4.772' | 6273 Blackwater (West) & West Gibbs (North & South) Roads |
| | | T-4345 | 194.5 | N 36° 40.092' | W 76° 5.717' | 4204 Blackwater Road (East side) |
| | | T-571vb | 228.0 | N 36° 34.728' | W 76° 6.892' | 2324 Indian Creek Road (South Side) |
| | | T-1435 | 159.7 | N 36° 35.140' | W 76° 6.244' | 2324 Indian Creek Road (North Side) |
| | | T-460 | 175.2 | N 36° 38.470' | W 76° 5.245' | 4780 Blackwater Road (East Side) Opposite Carolina Road |
| | | T-1454vb | 80.3 | N 36° 39.096' | W 76° 5.929' | Blackwater Road (West Side) North of Land of Promise Road |
| | | T-4067 | 115.0 | N 36° 39.587' | W 76° 6.760' | West End of Ives Road off of Blackwater Road |
| | | T-1402 | 65.4 | N 36° 38.486' | W 76° 5.907' | Blackwater & Land of Promise Roads (Southeast Corner) |
| | | T-2203 | 115.3 | N 36° 38.431' | W 76° 6.654' | Land of Promise (South) & Caroline (North) Roads; West of T-419 |
| | | T-419 | 306.9 | N 36° 38.681' | W 76° 6.163' | Land of Promise Road (North & South Sides) |
| | | T-456 | 92.1 | N 36° 38.516' | W 76° 7.027' | Land of Promise Road (South); West of T-2203 |
| | | T-459 | 126.8 | N 36° 38.498' | W 76° 7.315' | Land of Promise Road (South); West of T-456, City line splits |
| Donald H. Horsley | Virginia Beach | T-452 | 74.3 | N 36° 35.730' | W 76° 5.439' | Blackwater road (West Side); South of Hungarian Road |

# PERMITTED LAND APPLICATION SITES



| Operator | City | Site | Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| Donald H. Horsley | Virginia Beach | T-9228 | 39.7 | N 36° 36.294' | W 76° 5.102' | Blackwater road (East Side); @ "S" Turn @ Blackwater |
| Donald H. Horsley | Virginia Beach | T-571vb | 52.0 | N 36° 34.973' | W 76° 7.161' | 2324 Indian Creek Road (North Side) |
| Donald H. Horsley | Virginia Beach | T-1435 | 55.9 | N 36° 34.937' | W 76° 6.420' | 2324 Indian Creek Road (North Side) |
| Donald H. Horsley | Virginia Beach | T-9209 | 182.6 | N 36° 35.192' | W 76° 6.876' | 2300 block Indian Creek Road (North & South Sides) |
| Donald H. Horsley | Virginia Beach | T-9225 | 60.1 | N 36° 35.921' | W 76° 5.474' | Hungarian & Blackwater Roads (Southeast Side) |
| Donald H. Horsley | Virginia Beach | T-9226 | 41.8 | N 36° 35.632' | W 76° 5.872' | Hungarian Road (South Side); West of T-9225 |
| Donald H. Horsley | Virginia Beach | T-9229 | 30.3 | N 36° 35.565' | W 76° 6.693' | Hungarian Road (South Side); East of Chesapeake City Line |
| Donald H. Horsley | Chesapeake | T-472 | 84.9 | N 36° 34.929' | W 76° 10.644' | Gallbush Road (East Side) |
| Donald H. Horsley | Chesapeake | T-711 | 96.5 | N 36° 35.928' | W 76° 7.684' | 2100 block Sanderson Road (East Side); North of Hungarian Road |
| Donald H. Horsley | Chesapeake | T-230 | 110.1 | N 36° 36.181' | W 76° 8.040' | Sanderson Road (Southwest Corner); East of Right Angle Turn |
| Donald H. Horsley | Chesapeake | T-9 | 87.6 | N 36° 34.386' | W 76° 8.239' | Ansell Road @ End Just Off Baum Road |
| Donald H. Horsley | Chesapeake | T-16 | 21.7 | N 36° 35.630' | W 76° 7.828' | Hungarian Road (South Side); East of Sanderson Road |
| Donald H. Horsley | Chesapeake | T-193 | 254.6 | N 36° 35.501' | W 76° 8.611' | Indian Creek road (North Side); West of sanderson Road |
| Donald H. Horsley | Chesapeake | T-277 | 55.8 | N 36° 34.978' | W 76° 7.844' | 2100 block Indian Creek road (North Side) |
| Donald H. Horsley | Chesapeake | T-254 | 55.8 | N 36° 35.717' | W 76° 8.049' | Intersection Hungarian & Sanderson Roads |
| Donald H. Horsley | Chesapeake | T-535 | 23.6 | N 36° 34.950' | W 76° 8.437' | 2100 block Indian Creek Road (South Side); East of T-1268 |
| Donald H. Horsley | Chesapeake | T-1268 | 37.8 | N 36° 34.849' | W 76° 8.149' | 2100 block Indian Creek Road (South Side) |
| Donald H. Horsley | Chesapeake | T-571cp | 54.0 | N 36° 34.651' | W 76° 7.536' | 2324 Indian Creek Road & Baum Road |
| | | | **3473.4** | | | |
| | | | | | | |
| Donald H. Horsley | Chesapeake | T-718 | 117.9 | N 36° 42.003' | W 76° 8.291' | Carter Road (East Side); Near Runway |
| | | T-1334 | 69.8 | N 36° 41.287' | W 76° 8.708' | South of Blue Ridge Road @ End of Carter Road |
| | | T-1383 | 78.5 | N 36° 41.361' | W 76° 9.402' | South Side of Blue Ridge Road, West of T-1334 |
| | | T-625 | 249.0 | N 36° 41.954' | W 76° 9.857' | Bedford Street (East & West Sides); North of Blue Ridge Road |
| | | T-1321 | 45.1 | N 36° 34.044' | W 76° 8.190' | Ansell Road @ End Just Off Baum Road |
| | | | **560.3** | | | |
| | | | | | | |
| Edgar Lane | Chesapeake | T-491 | 83.32 | N36° 38' 53.11" | W76° 08' 17.47" | Long Ridge Rd & Carolina Rd |
| Edgar Lane | Chesapeake | T-198 | 160.63 | N36° 37' 27.73" | W76° 08' 42.34" | Cedarville Rd & Head of River Rd |
| | | T-405 | 348.55 | N36° 37' 27.73" | W76° 08' 42.34" | Cedarville Rd & Sanderson Rd |
| | | T-523 | 49.65 | N36° 38' 13.98" | W76° 07' 41.57" | Head of River Rd (north side) |
| | | T-1267 | 87.45 | N36° 38' 13.98" | W76° 07' 41.57 | Long Ridge Rd & Land of Promise Rd |

# PERMITTED LAND APPLICATION SITES



| Operator | City | Site | Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| | | T-4099 | 68.78 | N36° 37' 348.70" | W76° 08' 31.68" | Long Ridge Rd & Carolina Rd |
| | | T-9451 | 16.41 | N36° 38' 07.51" | W76° 08' 38.35" | Carolina Rd (south side) |
| | | T-9452 | 58.96 | N36° 38' 07.48" | W76° 08' 51.50" | Carolina Rd (south side) |
| | | T-9620 | 109.41 | N36° 37' 24.88" | W76° 07' 52.94" | Head of River Rd (north side) |
| | | T-9621 | 2.15 | N36° 37' 22.48 | W76° 08' 40.50" | Head of River Rd (north side) |
| | | T-9634 | 47.85 | N36° 36' 28.09' | W76° 07' 42.89" | Sanderson Road (east side) |
| | | | **1033.16** | | | |
| | | | | | | |
| G. C. Nicholas, Jr. | Chesapeake | T-5 | 230.7 | N 36° 33.531' | W 76° 14.230' | Ballahack Road (South Side); West of Backwoods Road |
| | | | **230.7** | | | |
| | | | | | | |
| Glenn H. Brunner | Chesapeake | T-231 | 61.4 | N 36° 40.805' | W 76° 8.398' | Fentress Airfield Road (East Side); North of Pocaty Road |
| | | T-283 | 72.8 | N 36° 38.653' | W 76° 7.977' | 2333 Land of Promise Road (South Side) |
| | | T-542 | 96.7 | N 36° 36.472' | W 76° 9.932' | Cedarville Road (West Side); South of Sanderson Road |
| | | | **230.9** | | | |
| | | | | | | |
| Guy Newman | Virginia Beach | T-68 | 78.1 | N 36° 48.667' | W 76° 2.991' | 800 block London Bridge Road (East Side); Along RR Tracks |
| | | T-4063 | 62.5 | N 36° 48.170' | W 76° 3.399' | London Bridge Road (East Side) Along RR Tracks, South of T-68 |
| | | T-41 | 58.4 | N 36° 50.248' | W 76° 2.730' | Intersection Potters (North) & Sludge Roads |
| | | T-137 | 107.3 | N 36° 47.320' | W 76° 2.801' | London Bridge (East) & Dam Neck (North) Roads |
| | | T-161 | 63.2 | N 36° 47.526' | W 76° 2.248' | 1900 bolck Harpers Road (West Side) |
| | | T-4066 | 41.7 | N 36° 49.272' | W 76° 2.962' | 500 block London Bridge Road (East Side) |
| | | T-4064 | 19.7 | N 36° 47.783' | W 76° 3.309' | Swamp Road (West Side) |
| | | T-123 | 85.2 | N 36° 50.170' | W 76° 1.006' | Intersection Oceana Blvd. & First Colonial Road |
| | | T-42 | 185.9 | N 36° 49.122' | W 76° 0.633' | 500 block Oceana Blvd & First Colonial Road |
| | | T-47 | 27.8 | N 36° 48.924' | W 76° 0.321' | 500 block Oceana Blvd (East Side) |
| | | T-4065 | 14.0 | N 36° 48.028' | W 76° 0.401' | Harpers Road (North) & Oceana Blvd (West) |
| | | T-155 | 45.0 | N 36° 48.525' | W 76° 0.961' | Princess Anne & Phantom Blvd (North side) |
| | | T-4026 | 210.6 | N 36° 46.115' | W 75° 58.569' | Firefall Drive (South); At End |
| Guy Newman | Virginia Beach | T-1419 | 94.0 | N 36° 35.084' | W 76° 5.334' | 2820 Indian Creek Road (West Side) |
| Guy Newman | Virginia Beach | T-1444 | 71.2 | N 36° 34.010' | W 76° 5.555' | 6356 Crags Causeway (East Side) |
| Guy Newman | Virginia Beach | T-446 | 215.9 | N 36° 33.608' | W 76° 5.591' | Crags Causeway (North & South Sides); West of West Gibbs Road |
| | | | **1380.5** | | | |

# PERMITTED LAND APPLICATION SITES



| Operator | City | Site | Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| | | | | | | |
| Guy Newman | Chesapeake | T-1220 | 284.7 | N 36° 39.173' | W 76° 11.177' | 800 block Beaver Dam Road (North & South Sides) |
| | | T-424 | 179.6 | N 36° 34.906' | W 76° 11.160' | Gallbush Road (East & West Sides); South of Indian Creek |
| | | T-428 | 405.0 | N 36° 34.389' | W 76° 14.068' | 1100 block Ballahack Road (North Side) |
| | | T-1325 | 196.9 | N 36° 40.149' | W 76° 7.950' | 2025 Pocaty Road (North & South Sides) |
| | | T-48 | 116.1 | N 36° 38.027' | W 76° 15.075' | Benefit & St. Brides Roads (Northwest Corner) |
| | | T-1457 | 149.4 | N 36° 37.597' | W 76° 11.501' | Ballentine Road (North Side); East of RR Tracks |
| | | T-221 | 264.6 | N 36° 37.440' | W 76° 10.147' | 1200 block Head of River Road (South Side) |
| | | | **1596.3** | | | |
| | | | | | | |
| H. M. Dudley, Jr. | Virginia Beach | T-328 | 77.8 | N 36° 37.149' | W 76° 2.342' | Intersection Princess Anne & Old & New Pungo Ferry Roads |
| | | T-343 | 16.5 | N 36° 36.616' | W 76° 0.840' | Morris Neck Road (West Side); Opposite Campbells Road |
| | | T-1530 | 25.2 | N 36° 36.412' | W 76° 1.010' | Morris Neck Road (East Side); Opposite Fitztown Road |
| | | T-433 | 70.03 | N 36° 39.387' | W 76° 5.761' | 4490 Blackwater Road (East Side) |
| | | T-1397 | 31.4 | N 36° 39.057' | W 75° 59.391' | Drum Point Road (North Side); East Side Muddy Creek Road |
| | | T-4244 | 145.1 | N 36° 40.939' | W 76° 1.693' | Princess Anne Road (West Side); South side of jarvis Road |
| | | | **366.03** | | | |
| | | | | | | |
| H. M. Dudley, Jr. | Chesapeake | T-213 | 189.5 | N 36° 39.304' | W 76° 9.757' | 1700 block Land of Promise road (South Side) |
| | | T-707 | 123.8 | N 36° 39.623' | W 76° 10.072' | 1600 block Land of Promise road (South Side) |
| | | | **313.3** | | | |
| | | | | | | |
| Herbert L."Pete" Powers | Chesapeake | T-85 | 30.5 | N 36° 33.446' | W 76° 12.790' | Ballahack Road (South Side); West of T-33 & East of T-68cp |
| | | T-68cp | 44.1 | N 36° 33.622' | W 76° 13.041' | Ballahack Road (North & South Sides); West of T-9431 |
| | | | **74.6** | | | |
| | | | | | | |
| Howard Salmons | Virginia Beach | T-1250 | 23.8 | N 36° 37.602' | W 76° 2.463' | Princess Anne Road (West Side); @ Grain Elevator |
| | | T-427 | 206.0 | N 36° 38.099' | W 76° 1.966' | Princess Anne Road (East Side); South of Creeds School |
| | | T-1286 | 20.3 | N 36° 38.890' | W 76° 2.357' | Stowe Road South (North Side) West of "S" Turn |
| | | T-1262 | 39.0 | N 36° 39.186' | W 76° 1.683' | Intersection Princess Anne (Northeast), Mill Landing (North) Roads |
| | | T-2106 | 50.1 | N 36° 39.247' | W 76° 1.483' | Mill Landing Road (Adjoining & North of T-1262) |
| | | T-297 | 40.4 | N 36° 40.026' | W 76° 1.914' | 1209 Princess Anne Road (West Side) |

# PERMITTED LAND APPLICATION SITES



| Operator | City | Site | Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| | | T-339 | 40.5 | N 36° 38.395' | W 76° 2.460' | 894 Princess Anne Road (West Side); North of Creeds School |
| | | | **420.1** | | | |
| | | | | | | |
| J. W. "Sonny" Freeman | Virginia Beach | T-332vb | 145.7 | N 36° 35.449' | W 76° 1.869 | Fitztown Road (South Side) @ West End |
| | | T-313 | 47.9 | N 36° 35.030' | W 75° 59.865' | Grimstead Road @ End Off of Back Bay Landing Road |
| | | | **193.6** | | | |
| | | | | | | |
| James Dana Todd | Chesapeake | T-9372 | 39.9 | N 36° 36.897' | W 76° 9.460' | 1300 block Sanderson Road (North Side) |
| | | T-9373 | 121.4 | N 36° 37.244' | W 76° 9.328' | Intersection Head of River (South) &Cedarville (West) Roads |
| | | T-461 | 126.6 | N 36° 37.703' | W 76° 9.354' | Intersection Long Ridge (North) & Peoples (North) Roads |
| | | T-931 | 63.7 | N 36° 38.017' | W 76° 9.411' | 2000 block Long Ridge Road (East Side) |
| | | T-687 | 131.2 | N 36° 38.676' | W 76° 9.745' | 1800 block Long Ridge Road (West Side) |
| | | T-1264 | 90.3 | N 36° 38.346' | W 76° 8.981' | 1800 block Long Ridge Road (East Side) |
| | | T-650 | 80.6 | N 36° 38.006' | W 76° 8.272' | Carolina Road (North & South Side); West of T-566 |
| | | T-566 | 100.8 | N 36° 37.795' | W 76° 8.096' | Carolina Road (South Side); West of T-9374 |
| | | T-9374 | 157.1 | N 36° 37.878' | W 76° 7.547' | Carolina Road (South Side); West of VB City Line |
| | | T-434 | 37.3 | N 36° 37.422' | W 76° 8.285' | 1600 block Head of River Road (North Side) |
| | | T-1215 | 164.0 | N 36° 36.701' | W 76° 7.602' | 800 block Head of River (North) & Beaver Dam (South) Roads |
| | | T-9234 | 30.7 | N 36° 36.940' | W 76° 8.407' | 1700 block Head of River Road (South Side) |
| | | T-9236 | 89.6 | N 36° 38.318' | W 76° 10.778' | 1500 block Head of River Road (South Side) |
| | | T-1454 | 116.2 | N 36° 37.651' | W 76° 9.032' | 1400 block Head of River Road (North Side) @ Cedarville Road |
| James Dana Todd | Chesapeake | T-3479 | 91.58 | N36° 38' 1.05" | W76° 10' 37.57" | Head of River Road (north side) |
| | | T-9376 | 67.82 | N36° 37' 58.57" | W76° 07' 26.07" | Old Carolina Road (south side) |
| | | T-9604 | 100.17 | N36° 38' 35.63 | W76° 09' 57.96" | Beaver Dam Rd & Long Ridge Rd |
| | | | **1609.0** | | | |
| | | | | | | |
| John Matyiko | Virginia Beach | T-433 P | 63.9 | N 36° 39.363' | W 76° 5.431' | 4490 Blackwater Road (East Side) |
| | | | **63.9** | | | |
| | | | | | | |
| Michael Salmons | Virginia Beach | T-1339 | 81.5 | N 36° 39.757' | W 76° 0.442' | Charity Neck Road (West Side); South of Gum Bridge Road |
| Michael Salmons | Virginia Beach | T-314vb | 280.7 | N 36° 35.591' | W 76° 0.640' | Back Bay Landing Road (End) & Fitztown Road @ Salmons Road |
| Michael Salmons | Virginia Beach | T-1256 | 69.8 | N 36° 35.195' | W 75° 59.861' | Back Bay Landing Road (End) |
| Michael Salmons | Virginia Beach | T-1528 | 45.1 | N 36° 35.231' | W 76° 0.746' | Back Bay Landing Road (South Side); East of Princess Anne Road |

# PERMITTED LAND APPLICATION SITES



| Operator | City | Site | Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| Michael Salmons | Virginia Beach | T-1306 | 52.8 | N 36° 39.541' | W 76° 1.695' | Princess Anne Road (East Side); North of Mill Landing Road |
| Michael Salmons | Virginia Beach | T-370 | 16.7 | N 36° 33.771' | W 75° 59.848' | Pocahontas Club Road (East Side) |
| Michael Salmons | Virginia Beach | T-1529 | 99.3 | N 36° 35.439' | W 76° 0.944' | Intersection Princess Anne, Fitztown, & Back Bay Roads |
| Michael Salmons | Virginia Beach | T-315 | 42.0 | N 36° 35.668' | W 76° 1.820' | Fitztown Road (North Side) @ West End |
| Michael Salmons | Virginia Beach | T-1516 | 63.4 | N 36° 38.568' | W 76° 2.179' | Intersection Princess Anne & Stowe Road South (Southwest Corner) |
| Michael Salmons | Virginia Beach | T-1228 | 24.0 | N 36° 35.841' | W 76° 0.909' | Fitztown Road Across From Salmons Road |
| Michael Salmons | Virginia Beach | T-327 | 88.9 | N 36° 38.444' | W 76° 0.851' | Intersection Morris Neck & Mill Landing Roads |
| Michael Salmons | Virginia Beach | T-1238 | 8.5 | N 36° 35.377' | W 76° 0.281' | Back Bay Landing Road (North Side); West of T-1256 |
| | | | **872.7** | | | |
| | | | | | | |
| L & M Farms | Chesapeake | T-274 | 234.8 | N 36° 38.442' | W 76° 11.106' | 700 block Head of River (North) & Beaver Dam (South) Roads |
| | | T-579 | 132.6 | N 36° 39.817' | W 76° 11.134' | 1755 Centerville Turnpike (East Side) |
| | | T-233 | 129 | N 36° 37.862' | W 76° 11.218' | 717 Head of River Road (South Side) |
| | | T-508 | 22.9 | N 36° 38.241' | W 76° 11.395' | 700 block Head of River Road (North Side) |
| | | T-1216 | 126 | N 36° 39.108' | W 76° 10.547' | 968 Beaver Dam Road (North Side) |
| | | T-5241 | 133.4 | N 36° 37.424' | W 76° 11.019' | Ballentine Road (Northeast Corner); @ End of Road |
| | | T-9255 | 36.9 | N 36° 37.615' | W 76° 10.483' | 1000 block Head of River Road (South Side); @ Long Ridge Road |
| | | | **815.6** | | | |
| | | | | | | |
| Marvin C. Etheridge, II | Virginia Beach | T-245 | 64.5 | N 36° 39.204' | W 76° 2.360' | North Stowe Road (North & South Sides); @ Turn in Road |
| | | T-372 | 34.2 | N 36° 36.035' | W 76° 1.416' | Princess anne Road (East Side); South of Morris Neck Road |
| | | T-396 | 20.6 | N 36° 35.712' | W 76° 1.495' | Fitztown Road (North Side) |
| | | T-365 | 60.5 | N 36° 37.258' | W 76° 1.919' | Princess anne Road (East Side); Opposite Old Pungo Ferry Road |
| | | | **179.8** | | | |
| | | | | | | |
| North Landing Farms | Virginia Beach | T-78 | 311.2 | N 36° 44.938 | W 76° 5.242' | 3328 North Landing Road (North Side) |
| | | T-180 | 77.4 | N 36° 44.917 | W 76° 5.727' | 3328 North Landing Road (North Side); West of T-78 |
| | | | **388.6** | | | |
| | | | | | | |
| O. Glenn Weatherly | Chesapeake | T-2489 | 120.3 | N 36° 38.117' | W 76° 9.058' | 1953 Long Ridge Road (East Side) |
| | | T-271 | 96.9 | N 36° 38.007' | W 76° 11.983' | Intersection Battlefield Blvd & Centerville Turnpike (East Side) |
| | | T-1251 | 95.8 | N 36° 37.256' | W 76° 11.493' | Ballentine Road (South Side) @ End, East of RR Tracks |

# PERMITTED LAND APPLICATION SITES



| Operator | City | Site | Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| | | T-9431 | 6.0 | N 36° 33.535' | W 76° 12.895' | 500 Ballahack Road (South Side) |
| | | T-577 | 30.0 | N 36° 33.530' | W 76° 11.796' | Battlefield Blvd (East Side); South of Intersection Ballahack Road |
| | | T-33 | 38.1 | N 36° 33.468' | W 76° 12.653' | 400 Ballahack Road (South Side) |
| | | T-9400 | 85.8 | N 36° 33.426' | W 76° 13.364' | 600 Ballahack Road (South Side); West of T-68cp |
| | | T-52 | 24.5 | N 36° 33.748' | W 76° 13.681' | 600 Ballahack Road (North Side) |
| | | T-544 | 227.6 | N 36° 33.799' | W 76° 15.843' | Relay Road (North Side) |
| | | T-42cp | 42.6 | N 36° 33.399' | W 76° 12.496' | 300 Ballahack Road (South Side); East of T-33 |
| | | T-9401 | 45.7 | N 36° 33.120' | W 76° 14.239' | Backwoods Road (North Side); North of NC Line |
| | | T-9402 | 22.6 | N 36° 33.034' | W 76° 14.463' | Backwoods Road (North Side); West of T-9401, North of NC Line |
| | | T-1231 | 37.7 | N 36° 34.819' | W 76° 16.072' | 2150 Ballahack Road (South Side); Northwest Side of US Navy |
| | | T-81 | 37.5 | N 36° 35.796' | W 76° 11.639' | 700 Indian Creek Road (South Side); East of Raven Road |
| | | T-121 | 34.5 | N 36° 37.894' | W 76° 13.039' | Benefit Road (South Side); East of Eason & West of Battlefield |
| | | T-2400 | 28.3 | N 36° 38.039' | W 76° 8.252' | Carolina Road (South Side) @ Bend in Road |
| O. Glenn Weatherly | Chesapeake | T-1863 | 37.1 | N36° 33' 06.05" | W76° 14' 09.88" | Ballahack Rd (north side) |
| | | | **1011.0** | | | |
| | | | | | | |
| Scott Weatherly | Chesapeake | T-1327 | 86.1 | N 36° 41.495' | W 76° 7.933' | Fentress Airfield Road (West Side); Along Runway |
| Scott Weatherly | Chesapeake | T-214 | 85.7 | N 36° 41.843' | W 76° 7.191' | Fentress Airfield Road (North of "S" Turn) |
| Scott Weatherly | Chesapeake | T-1359 | 114.3 | N 36° 42.237' | W 76° 7.101' | Lockhead Avenue (North & South Sides) |
| Scott Weatherly | Chesapeake | T-224 | 45.9 | N 36° 42.245' | W 76° 6.446' | Lockhead Avenue (North & South Sides) |
| | | | **332.0** | | | |
| | | | | | | |
| Oceana Stables | Virginia Beach | T-43 | 149.9 | N 36° 48.334' | W 76° 0.472' | 900 block Oceana Blvd (West Side) |
| | | | **149.9** | | | |
| | | | | | | |
| Robert Kovacs Jr. | Virginia Beach | T-444 | 100.8 | N 36° 33.207' | W 76° 4.725' | 6621 Blackwater Road (West Side) |
| Robert Kovacs Jr. | Virginia Beach | T-1428 | 62.7 | N 36° 33.163' | W 76° 5.283' | West Gibbs Road, East Side Joins West Side of T-444 |
| | | | **163.5** | | | |
| | | | | | | |
| Slabaugh Farms | Virginia Beach | T-4261 | 73.8 | N 36° 37.265' | W 76° 5.856' | Head of River road (South Side); West of Blackwater Road |
| Slabaugh Farms | Chesapeake | T-500 | 99.2 | N 36° 37.012' | W 76° 9.686' | 1200 block Sanderson Road (North Side); West of Cedarville Road |
| | | T-9434 | 146.5 | N 36° 40.957' | W 76° 10.498' | Between 1200 Centerville Tpk & Whittamore Road, South of Murry |

# PERMITTED LAND APPLICATION SITES



| Operator | City | Site | Acres | Latitude | Longitude | Location |
|---|---|---|---|---|---|---|
| | | T-9436 | 113.2 | N 36° 38.696' | W 76° 10.511' | Beaver Dam Road (North Side); West of Beaver Dam Court |
| | | T-9437 | 114.9 | N 36° 39.108' | W 76° 8.608' | 1500 block Long Ridge (West) & 1800 block Land of Primise (South) |
| | | T-366 | 51.8 | N 36° 41.709' | W 76° 20.569' | 2500 block Number Ten Lane (South Side) |
| | | T-2 | 58.6 | N 36° 33.843' | W 76° 14.920' | Relay Road (South Side) |
| | | T-8 | 74.0 | N 36° 33.441' | W 76° 14.766' | Relay Road (South Side) |
| | | T-14 | 24.6 | N 36° 33.596' | W 76° 15.476' | Relay Road (South Side) |
| | | T-18 | 338.2 | N 36° 33.165' | W 76° 15.635' | Relay Road (South Side) |
| | | T-1538 | 34.3 | N 36° 34.389' | W 76° 15.119' | Relay Road (North Side) |
| | | T-9602 | 261.6 | N 36° 39.863' | W 76° 9.205' | Fentress Airfield Road (West Side); @ Intersection Land of Promise |
| | | T-1542 | 71.3 | N 36° 40.888' | W 76° 9.577' | 900 block Whittamore Road (East Side |
| | | T-332Ch | 170.0 | N 36° 40.326' | W 76° 9.105' | Fentress Airfield Road (West Side); @ Intersection Long Ridge |
| | | T-11 | 7.3 | N 36° 42.330' | W 76° 8.492' | Maxwell & Bedford Srteets (Southeast Corner) |
| | | T-621 | 23.2 | N 36° 42.175' | W 76° 8.938' | Bedford Street (South Side); East of T-9477 & West of T-644 |
| | | T-638 | 18.3 | N 36° 42.700' | W 76° 8.849' | Maxwell Street (West Side); Between Mt Pleasant Road & Bedford |
| | | T-644 | 26.3 | N 36° 42.324' | W 76° 8.752' | Bedford Street (South Side); South of Corner of Bedford & Maxwell |
| | | T-656 | 125.0 | N 36° 41.910' | W 76° 8.649' | Carter Road (West Side); Just North of Blue Ridge Road |
| | | T-9477 | 26.3 | N 36° 42.165' | W 76° 9.070' | Bedford Street (South Side); West of T-621 |
| | | T-294 | 102.7 | N 36° 41.694' | W 76° 8.955' | Blue Ridge Road (North Side); West Side of Carter Road |
| | | T-669 | 24.2 | N 36° 41.967' | W 76° 5.625' | Blackwater Road (Northeast Side); Just East of Fentress Airfield Rd |
| | | T-693 | 213.1 | N 36° 41.338' | W 76° 6.145' | Blackwater Road (East & West Side); South of T-669 |
| Slabaugh Farms | Chesapeake | T-344 | 33.48 | N36° 43' 3.77" | W76° 09' 3.76" | Mount Pleasant Rd (north side) |
| | | T-226 | 138.13 | N36° 39' 7.17" | W76° 8' 29.40" | Land of Promise Rd (north side) |
| | | T-9594 | 117.31 | N36° 42' 4.12" | W76° 09' 3.76" | Bedford St (south side) |
| | | | **2487.3** | | | |
| | | | | | | |
| Theodore P. Fries | Chesapeake | T-297 | 80.1 | N 36° 39.435' | W 76° 7.677' | Silvertown avenue (North); @ End of Road |
| | | | **80.1** | | | |
| | | | | | | |
| Samuel Lanier Jr. | Chesapeake | T-1311 | 179.8 | N 36° 40.458' | W 76° 9.947' | Whittamore road (East & West Sides); North of Land of Promise |
| | | | **179.8** | | | |
| | | | | | | |
| | | | | | | |
| **Total Acres** | | | **19700.0** | | | |

6. Cumulative Loadings and Remaining Allotments. ***Not applicable***

**(Complete Question 6 only if the sewage sludge applied to this site since July 20, 1993 is subject to the cumulative pollutant loading rates (CPLRs) - see instructions.)**

a. Have you contacted DEQ or the permitting authority in the state where the sewage sludge subject to the CPLRs will be applied to ascertain whether bulk sewage sludge subject to the CPLRs has been applied to this site since July 20, 1993? __Yes __No
If no, sewage sludge subject to the CPLRs may not be applied to this site.
If yes, provide the following information:
Permitting authority:
Contact person:
Phone:( )

b. Based upon this inquiry, has bulk sewage sludge subject to the CPLRs been applied to this site since July 20, 1993? __Yes __No If no, skip the rest of Question 6. If yes, answer questions c - e.

c. Site size, in hectares: _____ (one hectare = 2.471 acres)

d. Provide the following information for every facility other than yours that is sending or has sent sewage sludge subject to the CPLRs to this site since July 20, 1993. If more than one such facility sends sewage sludge to this site, attach additional pages as necessary.
Facility name:
Facility contact:
Title:
Phone: ( )
Mailing address.
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

e. Provide the total loading and allotment remaining, in kg/hectare, for each of the following pollutants:

| | Cumulative loading | Allotment remaining |
|---|---|---|
| Arsenic | _____ | |
| Cadmium | _____ | |
| Copper | _____ | |
| Lead | _____ | |
| Mercury | _____ | |
| Nickel | _____ | |
| Selenium | _____ | |
| Zinc | _____ | |

**Complete Questions 7-12 below only if you apply sewage sludge, or you are responsible for land application of sewage sludge. Information required by these questions may be prepared as attachments to this form. Skip the following questions if you contract land application to someone else (as indicated under Section A.7) who is responsible for the operation.**

7. Sludge Characterization. Use the table below or a separate attachment, provide at least one analysis for each parameter. **See attached sheet**

PCBs (mg/kg)
pH (S. U.)
Percent Solids (%)
Ammonium Nitrogen (mg/kg)
Nitrate Nitrogen (mg/kg)
Total Kjeldahl Nitrogen (mg/kg)
Total Phosphorus (mg/kg)
Total Potassium (mg/kg)
Alkalinity as $CaCO_3$* (mg/kg)

* Lime treated sludge (10% or more lime by dry weight) should be analyzed for percent $CaCO_3$.

7.

## ANALYTICAL REPORT

**Project:** Atlantic STP
**VPDES Number** VA0081248
**Sample Number:** 1024612
**Project Code:** AT
**Sample Point:** NSP_TCLP
**Sample Date:** 01/07/10

| Analyte | Method | Unit | Result | Report Limit[1] | Regulatory Report Limit[2] | Analyst | Analysis Date | Analysis Time |
|---|---|---|---|---|---|---|---|---|
| Corrosivity | SW9045D | SU | 8.31 | | 12.5>PH>2.0 | RMORGA | 01/08/10 | 1335 |
| Free Liquid | SW9095 | | Negative | | | RMORGA | 01/08/10 | 1413 |
| Ignitability | SW1030 | | Negative | | | RMORGA | 01/08/10 | 1433 |
| Silver | SW6010C | mg/L | < 0.015 | 0.015 | 5.0 | SLABOC | 02/05/10 | 1035 |
| Arsenic | SW6010C | mg/L | < 0.030 | 0.030 | 5.0 | SLABOC | 02/05/10 | 1316 |
| Barium | SW6010C | mg/L | 0.354 | 0.005 | 100.0 | SLABOC | 02/05/10 | 1019 |
| Cadmium | SW6010C | mg/L | < 0.005 | 0.005 | 1.0 | SLABOC | 02/05/10 | 1019 |
| Chromium | SW6010C | mg/L | < 0.005 | 0.005 | 5.0 | SLABOC | 02/05/10 | 1019 |
| Mercury* | SW7470A | mg/L | < 0.0001 | 0.0001 | 0.2 | SLABOC | 01/27/10 | 1101 |
| Lead | SW6010C | mg/L | < 0.015 | 0.015 | 5.0 | SLABOC | 02/05/10 | 1316 |
| Selenium | SW6010C | mg/L | < 0.090 | 0.090 | 1.0 | SLABOC | 02/05/10 | 1035 |
| **8081** | | | | | | | | |
| Lindane | SW8081B | mg/L | < 0.00050 | 0.00050 | 0.4 | SLOPEZ | 01/26/10 | 0015 |
| Chlordane | SW8081B | mg/L | ND | 0.00020 | 0.03 | SLOPEZ | 01/26/10 | 0015 |
| Endrin | SW8081B | mg/L | < 0.00050 | 0.00050 | 0.02 | SLOPEZ | 01/26/10 | 0015 |
| Heptachlor | SW8081B | mg/L | < 0.00050 | 0.00050 | 0.008 | SLOPEZ | 01/26/10 | 0015 |
| Heptachlor epoxide | SW8081B | mg/L | < 0.00050 | 0.00050 | 0.008 | SLOPEZ | 01/26/10 | 0015 |
| Methoxychlor | SW8081B | mg/L | < 0.00050 | 0.00050 | 10.0 | SLOPEZ | 01/26/10 | 0015 |
| Toxaphene | SW8081B | mg/L | ND | 0.00075 | 0.5 | SLOPEZ | 01/26/10 | 0015 |
| **8082** | | | | | | | | |
| PCB 1016 | SW8082A | mg/L | ND | 0.0010 | | SLOPEZ | 01/29/10 | 0106 |
| PCB 1221 | SW8082A | mg/L | ND | 0.0010 | | SLOPEZ | 01/29/10 | 0106 |
| PCB 1232 | SW8082A | mg/L | ND | 0.0010 | | SLOPEZ | 01/29/10 | 0106 |
| PCB 1242 | SW8082A | mg/L | ND | 0.0010 | | SLOPEZ | 01/29/10 | 0106 |
| PCB 1248 | SW8082A | mg/L | ND | 0.0010 | | SLOPEZ | 01/29/10 | 0106 |
| PCB 1254 | SW8082A | mg/L | ND | 0.0010 | | SLOPEZ | 01/29/10 | 0106 |
| PCB 1260 | SW8082A | mg/L | ND | 0.0010 | | SLOPEZ | 01/29/10 | 0106 |
| **8260** | | | | | | | | |
| Benzene | SW8260C | mg/L | < 0.010 | 0.010 | 0.5 | SLOPEZ | 01/20/10 | 1911 |
| 2-Butanone | SW8260C | mg/L | 0.037 | 0.010 | 200.0 | SLOPEZ | 01/20/10 | 1911 |

**Notes**

*[1] Report Limit is lowest concentration at which quantitation is demonstrated.*

*[2] Regulatory Report Limit is the quantification level listed in Federal Register, Vol.55, No.61, Thursday, March 29, 1990.*

** Mercury: value re-reported, because of corrected report limit.*

# ANALYTICAL REPORT

**Project:** Atlantic TP
**Project Number:** P993197
**Sample Number:** 1024612
**Project Code:** AT
**Sample Point:** NSP_TCLP
**Sample Date:** 01/07/10

| Analyte | Method | Unit | Result | Report Limit[1] | Regulatory Report Limit[2] | Analyst | Analysis Date | Analysis Time |
|---|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | SW8260C | mg/L | < 0.010 | 0.010 | 0.5 | SLOPEZ | 01/20/10 | 1911 |
| Chlorobenzene | SW8260C | mg/L | < 0.010 | 0.010 | 100.0 | SLOPEZ | 01/20/10 | 1911 |
| Chloroform | SW8260C | mg/L | < 0.010 | 0.010 | 6.0 | SLOPEZ | 01/20/10 | 1911 |
| 1,4-Dichlorobenzene | SW8260C | mg/L | < 0.010 | 0.010 | 7.5 | SLOPEZ | 01/20/10 | 1911 |
| 1,2-Dichloroethane | SW8260C | mg/L | < 0.010 | 0.010 | 0.5 | SLOPEZ | 01/20/10 | 1911 |
| 1,1-Dichloroethene | SW8260C | mg/L | < 0.010 | 0.010 | 0.7 | SLOPEZ | 01/20/10 | 1911 |
| Tetrachloroethene | SW8260C | mg/L | < 0.010 | 0.010 | 0.7 | SLOPEZ | 01/20/10 | 1911 |
| Trichloroethene | SW8260C | mg/L | < 0.010 | 0.010 | 0.5 | SLOPEZ | 01/20/10 | 1911 |
| Vinyl Chloride | SW8260C | mg/L | < 0.010 | 0.010 | 0.2 | SLOPEZ | 01/20/10 | 1911 |
| **8270** | | | | | | | | |
| 2,4-Dinitrotoluene | SW8270D | mg/L | < 0.010 | 0.010 | 0.13 | IGERAS | 01/27/10 | 1405 |
| Hexachlorobenzene | SW8270D | mg/L | < 0.010 | 0.010 | 0.13 | IGERAS | 01/27/10 | 1405 |
| Hexachlorobutadiene | SW8270D | mg/L | < 0.010 | 0.010 | 0.5 | IGERAS | 01/27/10 | 1405 |
| Hexachloroethane | SW8270D | mg/L | < 0.010 | 0.010 | 3.0 | IGERAS | 01/27/10 | 1405 |
| o-Cresol | SW8270D | mg/L | < 0.010 | 0.010 | 200.0 | IGERAS | 01/27/10 | 1405 |
| p/m-Cresol | SW8270D | mg/L | < 0.020 | 0.020 | 200.0 | IGERAS | 01/27/10 | 1405 |
| Total Cresol | SW8270D | mg/L | < 0.030 | 0.030 | 200.0 | | | |
| Nitrobenzene | SW8270D | mg/L | < 0.010 | 0.010 | 2.0 | IGERAS | 01/27/10 | 1405 |
| Pentachlorophenol | SW8270D | mg/L | < 0.010 | 0.010 | 100.0 | IGERAS | 01/27/10 | 1405 |
| Pyridine | SW8270D | mg/L | < 0.010 | 0.010 | 5.0 | IGERAS | 01/27/10 | 1405 |
| 2,4,6-Trichlorophenol | SW8270D | mg/L | < 0.010 | 0.010 | 2.0 | IGERAS | 01/27/10 | 1405 |
| 2,4,5-Trichlorophenol | SW8270D | mg/L | < 0.010 | 0.010 | 400.0 | IGERAS | 01/27/10 | 1405 |
| ***Subcontracted Analysis**** | | | | | | | | |
| 2,4-D | SW8151A | ug/L | <4 | 4 | 10.0 mg/L | DLL | 01/27/10 | 2042 |
| 2,4,5-TP | SW8151A | ug/L | <4 | 4 | 1.0 mg/L | DLL | 01/27/10 | 2042 |

**Notes**

[1] *Report Limit is lowest concentration at which quantitation is demonstrated.*

[2] *Regulatory Report Limit is the quantification level listed in Federal Register, Vol.55, No.61, Thursday, March 29, 1990.*

** Analysis performed by James R. Reed and Associates Laboratory.*

**Authorization:**_____ **Date:**_____

Atlantic STP Biosolids Data VA0081248

| Parameter | pH | TS | TKN | NH3 | NOX | P | K |
|---|---|---|---|---|---|---|---|
| Unit | SU | % | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| 5/5/10 | 8.31 | 18.8 | 63600 | 11800 | 11 | 28100 | 1530 |
| 5/5/10 | 9.44 | 20.1 | 59600 | 5880 | <10 | 25200 | 1500 |
| 6/2/10 | 8.54 | 18.3 | 81200 | 15700 | 11 | 27100 | 2180 |
| 6/2/10 | 9.35 | 19.3 | 66000 | 9060 | <10 | 25300 | 1990 |
| 7/7/10 | 8.51 | 18.4 | 76800 | 13200 | <11 | 33700 | 2710 |
| 7/7/10 | 9.52 | 19.7 | 68300 | 7080 | <10 | 30600 | 2180 |
| 8/4/10 | 8.26 | 18.7 | 73600 | 17100 | <11 | 34500 | 2390 |
| 8/4/10 | 8.86 | 18.6 | 64400 | 13400 | <11 | 37700 | 2620 |
| 9/1/10 | 8.43 | 18.1 | 66100 | 17000 | <11 | 34200 | 2870 |
| 9/1/10 | 9.58 | 18.7 | 60900 | 8860 | <11 | 30700 | 2640 |
| 10/6/10 | 8.56 | 17.7 | 70900 | 13500 | <11 | 37800 | 2840 |
| 10/6/10 | 9.13 | 17.9 | 61500 | 10500 | <11 | 33100 | 2660 |
| 11/3/10 | 8.46 | 17.7 | 72400 | 14000 | <11 | 37600 | 2500 |
| 11/3/10 | 9.01 | 17.9 | 74200 | 12900 | <11 | 32900 | 2610 |
| 12/2/10 | 8.35 | 17.7 | 81400 | 14300 | <11 | 33300 | 2660 |
| 1/6/11 | 8.71 | 17.4 | 80100 | 15200 | <12 | 32300 | 3030 |
| 2/3/11 | 8.18 | 17.3 | 73000 | 15100 | <11 | 33600 | 3150 |
| 3/3/11 | 8.62 | 17.2 | 70000 | 16400 | <11 | 31900 | 3340 |
| 4/6/11 | 8.3 | 16.4 | 82000 | 18500 | <11 | 34500 | 3100 |

8. Storage Requirements. **See attachment**

Existing and proposed sludge storage facilities must provide an estimated annual sludge balance on a monthly basis incorporating such factors as storage capacity, sludge production and land application schedule. Include pertinent calculations justifying storage requirements.

Proposed sludge storage facilities must also provide the following information:

a. A sludge storage site layout on a 7.5 minute topographic quadrangle or other appropriate scaled map to show the following topographic features of the surrounding landscape to a distance of 0.25 mile. Clearly mark the property line.
   1) Water wells, abandoned or operating
   2) Surface waters
   3) Springs
   4) Public water supply(s)
   5) Sinkholes
   6) Underground and/or surface mines
   7) Mine pool (or other) surface water discharge points
   8) Mining spoil piles and mine dumps
   9) Quarry(s)
   10) Sand and gravel pits
   11) Gas and oil wells
   12) Diversion ditch(s)
   13) Agricultural drainage ditch(s)
   14) Occupied dwellings, including industrial and commercial establishments
   15) Landfills or dumps
   16) Other unlined impoundments
   17) Septic tanks and drainfields
   18) Injection wells
   19) Rock outcrops

b. A topographic map of sufficient detail to clearly show the following information:
   1) Maximum and minimum percent slopes
   2) Depressions on the site that may collect water
   3) Drainageways that may attribute to rainfall run-on to or runoff from this site
   4) Portions of the site (if any) which are located with the 100-year floodplain and how the storage facility will be protected from flooding

c. Data and specifications for the storage facility lining material.

d. Plan and cross-sectional views of the storage facility.

e. Depth from the bottom of the storage facility to the seasonal high water table and separation distance to the permanent water table.

9. Land Area Requirements. Provide calculations justifying the land area requirements for land application of sewage sludge taking into consideration average soil productivity group, crop(s) to be grown and most limiting factor(s) of the sewage sludge, specifically Plant Available Nitrogen (PAN), Calcium Carbonate Equivalence (CCE), and metal loadings (CPLR sewage sludge only), where applicable. Relate PAN, CCE, and metal loadings to demonstrate the most limiting factor for land application. **See attachment**

10. Landowner Agreement Forms. Provide a properly completed Sewage Sludge Application Agreement Form (attached) for each landowner if sewage sludge is to be applied onto land not owned by the applicant. **See attachment**

11. Ground Water Monitoring.

Are any ground water monitoring data available for this land application site? ___Yes _X_No

If yes, submit the ground water monitoring data with this permit application. Also submit a written description of the well locations, approximate depth to ground water, and the ground water monitoring procedures used to obtain these data.

8.

Atlantic STP VA0081248

**On-Site Storage Facilities**

Anaerobically digested, dewatered biosolids are conveyed to two covered concrete storage pads located on-site at the Atlantic STP. Each pad is approximately 328 feet long by 200 feet wide. Dewatered biosolids are placed in numbered bays with a front end loader and stacked an average of four feet. The following assumptions are made to determine the storage pad capacity.

Estimated plant biosolids production: 868 dry lbs/MG
Average Solids Content of biosolids: 18%
Estimated plant production: (868 dry lbs/MG)/18%= 4822 wet lbs/MG
Biosolids weight: 1685 lbs/yard$^3$

Estimated biosolids volume/day at permitted design flow of 54 MGD:

$$\frac{4822 \text{ wet lbs/MG} * 54 \text{ MG}}{1685 \text{ lbs/yard}^3} = 154 \text{ yard}^3\text{/day}$$

Assuming biosolids stacked 4 feet high in a trapezoidal configuration:

$$\text{Storage Pad Volume} = \frac{\text{base area top + base area bottom}}{2} * \text{stacking height} * \text{length of pad}$$

$$\text{Storage Pad Volume} = \frac{(180 \text{ ft} + 200 \text{ ft})}{2} * 4 \text{ ft} * 328 \text{ ft} = 249{,}280 \text{ feet}^3$$

249,280 feet$^3$/ 27 feet = 9232 yard$^3$

(9232 yard$^3$ )/ 154 yard$^3$/day = 60 days

Total Storage Pad Capacity (2 pads) = approximately 120 days storage at design flow

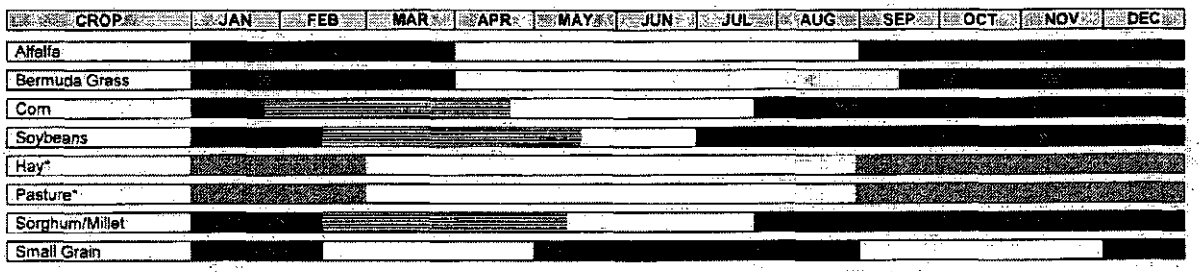
Land application spreading operations will conform to the following nutrient management criteria:

8.

Atlantic STP VA0081248

7. Biosolids Spreading Schedule.

**BIOSOLIDS SPREADING SCHEDULE**




Note * Late fall and winter biosolids applications may be made to a trap crop only if applications are in accordance with 4VAC5-15.
Cool season grasses only. Fescue and or Orchardgrass

Spread liquid or dewatered biosolids at the rates and times specified in the nutrient management plan.

Do not spread liquid or dewatered biosolids during these shaded time periods.

Applications during these time periods shall comply with the following:

- Biosolids applications will not be made earlier than 30 days prior to planting on environmentally sensitive sites.
- On fields not listed as environmentally sensitive:
  - Applications of dewatered aneerobically digested or dewatered lime stabilized biosolids will not occur more than 90 days prior to spring planting on fields having (i) slopes less than 7% throughout the application area or (ii) having at least 60% uniform ground cover from crop residue.
  - Liquid biosolids applications will not occur more than 60 days prior to spring planting.

Biosolids applications should be avoided whenever possible during this period (late fall-winter). Fields must have greater than 60% uniform live cover with plant height greater than three (3) inches. Applications made to cool season grass hay and pasture, if applied after 9/1 of any year until 3/1 of the following year, shall not exceed ½ of the total nitrogen rate

*As stipulated in 4VAC5-15, applications of sewage sludge to environmentally sensitive sites shall fully comply with these timing requirements immediately. Implementation of these timing requirements on nonenvironmentally sensitive sites shall be required for swege sludge applications on January 1, 2009, and thereafter.*

## Land Area Requirements

A large inventory of land is needed to support the practice of infrequent land application (one application per three years). HRSD currently has 19,700 acres of land permitted. HRSD's land application contract requires the maintenance of a minimum of 300% over the annual usage requirement.

Additional acres are required due to increasing development of the rural community. In addition, varying crop rotations and fluctuating weather conditions affects the amount of land that is available for use. Having a large inventory of land helps perpetuate the HRSD land application program.

Based on an anticipated Soil productivity group - Class I-A, a corn or soybean crop planting, an estimated plant available nitrogen (PAN) rate of 42 lbs per acre, surface application with incorporation within 24 hours and approximately 8,000 tons production per year, an estimated 2,000 acres per year is needed to support the land application program (approximately 4 tons per acre applied).

A Dosage Rate Evaluation Form is prepared for each land application event. It is based on twelve months' average of analyses of biosolids stored at the Atlantic Plant Storage pad. The most limiting factor for the HRSD land application program is the PAN. An example of the Dosage Rate Evaluation Form is attached for reference.

9.

Cleaning wastewater every day for a better Bay.

## DOSAGE RATE EVALUATION
## HRSD - ATLANTIC WWTP
## NUTRI-GREEN® BIOSOLIDS

### REPORTING PERIOD: 01-Jan-10 to 31-Dec-10

| PARAMETER | ppm | lbs/dt | Year 1 |
|---|---|---|---|
| Org-N | 56525 | 113.05 | |
| NH4-N | 14123 | 28.25 | |
| PAN (Incorporated within 6 hrs) | 26066 | 52.13 | |
| PAN (Incorporated 1-7 days) | 24159 | 48.32 | |
| PAN (Surface Application) | 21617 | 43.23 | |
| Phosphorus (P) | 32708 | 65.42 | |
| Phosphate ($P_2O_5$) | 75228.4 | 150.46 | 49.65 |
| Potassium (K) | 2198 | 4.40 | |
| Potash ($K_2O$) | 2637.6 | 5.28 | |
| Sulfur (S) | 2.18 | 0.00 | |
| Magnesium (Mg) | 4916 | 9.83 | |
| Manganese (Mn) | 319 | 0.64 | |
| Molybdenum (Mo) | 11 | 0.02 | |
| Liming Potential ($CaCO_3$) | 6.31 | 0.01 | |
| Zinc (Zn) | 1508 | 3.02 | |
| Copper (Cu) | 314 | 0.63 | |
| Arsenic (As) | 14 | 0.03 | |
| Cadmium (Cd) | 4 | 0.01 | |
| Chromium (Cr) | 83 | 0.17 | |
| Lead (Pb) | 34 | 0.07 | |
| Mercury (Hg) | 1 | 0.00 | |
| Nickel (Ni) | 14 | 0.03 | |
| Selenium (Se) | 5 | 0.01 | |

**PA-N (Surface) is calculated using 30% mineralization of the organic fraction, 50% of the non-volatilized ammonia fraction for surface application, and a 10% denitrification factor . PA-N (Incorporation) is calculated using a 30% mineralization of the organic fraction, 70% of the non-volatilized ammonia fraction for the incorporated application and a 10% denitrification factor.**

**PA-N (Incorporation 6hrs) is calculated using a 30% mineralization of the organic fraction, 85% of the non-volatilized ammonia fraction for the incorporated application and a 10% denitrification factor.**

**Phosphate is calculated using 33% of the total as being available the first year.**

10.

HRSD
Cleaning wastewater every day for a better Bay.

**NUTRI-GREEN® BIOSOLIDS RECYCLING**
**LAND APPLICATION PROGRAM**

**LANDOWNER/OPERATOR AGREEMENT**

This **AGREEMENT** is entered into this _____ day of _____, 20___, by and between Hampton Roads Sanitation District, Nutri-Green® Biosolids Recycling Program, 1436 Air Rail Avenue, P.O. Box 5911, Virginia Beach, Virginia 23455-0911, hereinafter referred to as "**HRSD**", and _____, hereinafter referred to as "**LANDOWNER**", and _____, the Lessee of the real property hereinafter described and said Lessee shall be referred to as "**OPERATOR**".

**LANDOWNER** is the owner of the agricultural land shown on the attached map and designated there as _____ ("landowner's land"). **HRSD** and /or its agent agrees to land apply and **LANDOWNER** agrees to accept the application of Nutri-Green® (biosolids) on **LANDOWNER'S** land in the amounts and the manner authorized by permit number **VA 0081248** which is held by **HRSD**.

**LANDOWNER** and/or **OPERATOR** acknowledge that the appropriate application of Nutri-Green® will be beneficial in providing soil conditioning organic matter and fertilizer nutrients to the land. Moreover, **LANDOWNER** and/or **OPERATOR** acknowledge that he has been expressly advised that the following Best Management Practices (BMP's) must be followed after the application of the Nutri-Green® biosolids fertilizer:

1. Public access to the landowner's land upon which Nutri-Green® has been applied shall be controlled for at least thirty (30) days following any application. No Nutri-Green® amended soil should be evacuated or removed from the site during the same period of time (an example of restricted access is remoteness);

2. Food crops with harvested parts that touch the Nutri-Green®/soil mixture and are totally above the land surface shall not be harvested for fourteen (14) months following application and twenty (20) months following application when harvested parts are below the surface of the land;

3. Nutri-Green® application to pasture, forage, and hay crops used for meat producing livestock shall not be grazed or fed chopped foliage for thirty (30) days and for lactating dairy animals a minimum of sixty (60) days. Other animals shall be restricted from grazing for thirty (30) days;

4. Supplemental commercial fertilizer or manure applications should be coordinated with the Nutri-Green® application to prevent the application of excess crop nutrients. A nutrient management plan will be supplied to the landowner and/or operator by HRSD at the time of or just following the application of Nutri-Green® to a specific permitted site; Landowner/and or operator agrees to follow the recommendations provided in the nutrient management plan and to notify HRSD and/or its agents of any changes to the plan (i.e. change in crops to be grown etc.);

5. If soil pH is equal to or less than 6.0, HRSD may provide lime or a lime product (up to 1.5 tons per acre) to adjust the soil pH to 6.0 or higher;

6. Landowner and/or operator agrees to notify HRSD and/or its agent of the sale, exchange, lease, or change of possession of any permitted sites owned or operated by the landowner and/or operator, and further agrees to provide the name and address (if different than stated below) of purchasers or new possessors;

7. Landowner and/or operator agree that the application of Nutri-Green® biosolids is beneficial to the land. Nutri-Green® provides organic matter, soil conditioning, soil tilth, and moisture holding capacity, as well as macro and micronutrients. For these reasons, we, the landowner and/or operator agree to pay HRSD the designated per acre charge (not to exceed $5.00 per acre) for the application of Nutri-Green® to the owned and/or operated real property;

8. Landowner and/or operator certifies that no concurrent agreements are in effect for the aforementioned land application site(s) and further agrees NOT to enter into any other land application program agreements without giving HRSD prior written notice;

9. HRSD agrees to indemnify, defend and hold harmless the Landowner and/or Operator from and against all claims, suits, actions, demands, losses, costs, liabilities, and expenses (including remediation costs and reasonable attorney's fees) to the extent such losses result from: (1) HRSD's and/or its agents violation of applicable laws or regulations in effect at the time of Nutri-Green® (biosolids) application; or (2) the negligence or willful misconduct of HRSD and/or its agent in the delivery and application on Nutri-Green® to the undersigned Landowner and/or Operators' property.

HRSD and/or its agent agree to notify the landowner and/or operator of the proposed schedule for Nutri-Green® application and specifically prior to any particular application to a permitted site. Either party upon written notice to the addresses specified below may terminate this agreement.

LANDOWNER:

_____

Mailing Address:

_____
_____
_____
_____
_____

Phone: _____

OPERATOR:

_____

Mailing Address:

_____
_____
_____
_____

Phone:_____

HAMPTON ROADS SANITATION DISTRICT:

By:_____

Mailing Address:

HRSD
Agronomist/Recycling Manager
Nutri-Green® Biosolids Recycling Program
1436 Air Rail Avenue
P.O Box 5911
Virginia Beach, Virginia 23455-0911

12. Land Application Site Information.

**(Complete Items a-d for sites receiving infrequent application - land application of sewage sludge up to the agronomic rate at a frequency of once in a 3 year period; complete Items a-h for sites receiving frequent application - land application of sewage sludge in excess of 70% the agronomic rate at a frequency greater than once in a 3 year period)**

a. Provide a general location map for each county which clearly indicates the location of all the land application sites.

b. For each land application site provide a site plan of sufficient detail to clearly show the concerned landscape features and associated buffer zones (See instructions). Provide a legend for each landscape feature and the net acreage for each field taking into account the proposed buffer zones.

c. In order to ensure that land application of bulk sewage sludge will not impact federally listed threatened or endangered species or federally designated critical habitat, the applicant must notify the field office of the U. S. Department of the Interior, Fish and Wildlife Service (FWS), by a letter, the proposed land application activities with the identification of the land application sites. The address and phone number of FWS are provided below.

U. S. Fish and Wildlife Service
Virginia Field Office
P. O. Box 480
White Marsh, VA 23183
TEL: (804)693-6694

Provide a copy of the notification letter with this application form.

d. Provide a soil survey map, preferably photographically based, with the field boundaries clearly marked. (A USDA-SCS soil survey map should be provided, if available.)
Provide a detailed legend for each soil survey map which uses accepted USDA-SCS descriptions of the typifying pedon for each soil series (soil type). Complex associations may be described as a range of characteristics. Soil descriptions shall include as a minimum the following information.

1) Soil symbol
2) Soil series, textural phase and slope range
3) Depth to seasonal high water table
4) Depth to bedrock
5) Estimated soil productivity group (for the proposed crop rotation)

**Item e - h are required for sites receiving frequent application of sewage sludge**

e. In order to verify the information provided in item d, characterize the soil at each land application site. Representative soil borings or test pits to a depth of five feet or to bedrock if shallower, are to be coordinated for the typifying pedon of each soil series (soil type). Soil descriptions shall include as a minimum the following information:

1). Soil symbol
2). Soil series, textural phase and slope range
3). Depth to seasonal high water table
4). Depth to bedrock
5). Estimated soil productivity group (for the proposed crop rotation)

U.S. Fish & Wildlife Service
Ecological Services
P.O. Box 99
6669 Short Lane
Gloucester, VA 23061

RE: Notification of proposed sites to be land applied with biosolids

Dear Sir/Madam:

Hampton Roads Sanitation District (HRSD) has a biosolids land application program which operates under the Atlantic STP VPDES permit VA0081248 issued by the Department of Environmental Quality (DEQ). The biosolids are treated to Class B pathogen and vector attraction reduction requirements of 9VAC25-31-560. The biosolids meet the Table 3 pollutant concentration limits of 9VAC25-31-540. The biosolids are land applied to private farm sites in accordance with the management restrictions listed in 9VAC25-31-550.

HRSD periodically searches for new sites to ensure an adequate land base is maintained as previously approved sites may no longer be available due to development, change of ownership, etc. For this reason, HRSD has submitted the attached list of proposed sites to DEQ for approval in the land application program. HRSD has chosen these agricultural sites based on physical, chemical, economic, and social criteria. These are active farming sites that have already been cleared and farmed for at least five years. The land application of biosolids will provide an organic source of nutrients as an alternative to commercial fertilizer. The amount of biosolids applied to the site will not exceed the agronomic loading rate for the crop grown. A nutrient management plan is developed for each farm site receiving biosolids. The biosolids will normally be incorporated into the soil within 48 hours. However, discing is not performed on pasture and hay fields or on crop fields where the farmer has adequate crop residue and wants to maintain a no-till or minimum tillage system. The application will comply with all buffer zone requirements. HRSD does not believe that federally listed threatened or endangered species or their habitat will be impacted by land application of biosolids to these sites.

Sincerely,

Norman E. LeBlanc
Director of Water Quality

enclosure

f. Collect and analyze soil samples from each field, weighted to best represent each of the soil borings performed for Item e. Using the table below or a separate attachment, provide at least one analysis per sample for each of the following parameters.

Soil Organic Matter (%)
Soil pH (std. units)
Cation Exchange Capacity (meq/100g)
Total Nitrogen (ppm)
Organic Nitrogen (ppm)
Ammonia Nitrogen (ppm)
Nitrate Nitrogen (ppm)
Available Phosphorus (ppm)
Exchangeable Potassium (mg/100g)
Exchangeable Sodium (mg/100g)
Exchangeable Calcium (mg/100g)
Exchangeable Magnesium (mg/100g)
Arsenic (ppm)
Cadmium (ppm)
Copper (ppm)
Lead (ppm)
Mercury (ppm)
Molybdenum (ppm)
Nickel (ppm)
Selenium (ppm)
Zinc (ppm)
Manganese (ppm)
Particle Size Analysis or
USDA Textural Estimate (%)

g. Relate the crop nutrient needs to anticipated yields, soil productivity rating and the various fertilizer or nutrient sources from sludge and chemical fertilizers. Describe any specialized agronomic management practices which may be required as a result of high soil pH. If the sludge is expected to possess an unusually high CCE or other unusual properties, provide a description of any plant tissue testing, supplemental fertilization or intensive agronomic management practices which may be necessary.

h. Using a narrative format and referencing any related charts, describe the proposed cropping system. Show how the crop rotation and management will be coordinated with the design of the land application system. Include any supplemental fertilization program, soil testing and the coordination of tillage practices, planting and harvesting schedules and timing of land application.

**FACILITY NAME:** Atlantic STP **VPDES PERMIT NUMBER:** VA0081248

**SECTION D. SURFACE DISPOSAL** **Not Applicable**

**Complete this section only if you own or operate a surface disposal site. Provide the information for each active sewage sludge unit.**

1. Information on Active Sewage Sludge Units.
   a. Unit name or number:
   b. Unit location
      i. Street or Route#:
      County:
      City or Town: _____ State: _____ Zip:
      ii. Latitude:_____ Longitude:
      Method of latitude/longitude determination
      _____ USGS map _____ Filed survey _____ Other
   c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.
   d. Total dry metric tons of sewage sludge placed on the active sewage sludge unit per 365-day period: _____dry metric tons.
   e. Total dry metric tons of sewage sludge placed on the active sewage sludge unit over the life of the unit: _____ dry metric tons.
   f. Does the active sewage sludge unit have a liner with a minimum hydraulic conductivity of $1 \times 10^{-7}$cm/sec? ___Yes ___No If yes, describe the liner or attach a description.

   g. Does the active sewage sludge unit have a leachate collection system? ___Yes ___No
   If yes, describe the leachate collection system or attach a description. Also, describe the method used for leachate disposal and provide the numbers of any federal, state or local permits for leachate disposal:

   h. If you answered no to either f or g, answer the following:
   Is the boundary of the active sewage sludge unit less than 150 meters from the property line of the surface disposal site? ___Yes ___No If yes, provide the actual distance in meters:
   i. Remaining capacity of active sewage sludge unit, in dry metric tons:_____ dry metric tons
   Anticipated closure date for active sewage sludge unit, if known:_____ (MM/DD/YYYY)
   Provide with this application a copy of any closure plan developed for this active sewage sludge unit.

2. Sewage Sludge from Other Facilities.
   Is sewage sludge sent to this active sewage sludge unit from any facilities other than yours? ___Yes ___No
   If yes, provide the following information for each such facility, attach additional sheets as necessary.
   a. Facility name:
   b. Facility contact:
   Title:
   Phone: ( )
   c. Mailing address.
   Street or P.O. Box:
   City or Town:_____ State:_____ Zip:
   d. List, on this form or an attachment, the facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the facility's sewage sludge management practices:
   Permit Number: Type of Permit:
   _____
   _____
   e. Which class of pathogen reduction is achieved before sewage sludge leaves the other facility?
   ___Class A ___Class B ___Neither or unknown
   f. Describe, on this form or on another sheet of paper, any treatment processes used at the other facility to reduce pathogens in sewage sludge:

g. Which vector attraction reduction option is achieved before sewage sludge leaves the other facility?
___ Option 1 (Minimum 38 percent reduction in volatile solids)
___ Option 2 (Anaerobic process, with bench-scale demonstration)
___ Option 3 (Aerobic process, with bench-scale demonstration)
___ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
___ Option 5 (Aerobic processes plus raised temperature)
___ Option 6 (Raise pH to 12 and retain at 11.5)
___ Option 7 (75 percent solids with no unstabilized solids)
___ Option 8 (90 percent solids with unstabilized solids)
___ None or unknown

h. Describe, on this form or another sheet of paper, any treatment processes used at the other facility to reduce vector attraction properties of sewage sludge:

i. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities performed by the other facility that are not identified in e - h above:

3. Vector Attraction Reduction.

a. Which vector attraction reduction option, if any, is met when sewage sludge is placed on this active sewage sludge unit?
___ Option 9 (Injection below land surface)
___ Option 10 (Incorporation into soil within 6 hours)
___ Option 11 (Covering active sewage sludge unit daily)

b. Describe, on this form or another sheet of paper, any treatment processes used at the active sewage sludge unit to reduce vector attraction properties of sewage sludge:

4. Ground Water Monitoring.

a. Is ground water monitoring currently conducted at this active sewage sludge unit or are ground water monitoring data otherwise available for this active sewage sludge unit? ___Yes ___No
If yes, provide a copy of available ground water monitoring data. Also provide a written description of the well locations, the approximate depth to ground water, and the ground water monitoring procedures used to obtain these data.

b. Has a ground water monitoring program been prepared for this active sewage sludge unit?
___Yes ___No If yes, submit a copy of the ground water monitoring program with this application.

c. Have you obtained a certification from a qualified ground water scientist that the aquifer below the active sewage sludge unit has not been contaminated? ___Yes ___No
If yes, submit a copy of the certification with this application.

5. Site-Specific Limits.

Are you seeking site-specific pollutant limits for the sewage sludge placed on the active sewage sludge unit?
___Yes ___No If yes, submit information to support the request for site-specific pollutant limits with this application.

## SECTION C. LAND APPLICATION OF BULK SEWAGE SLUDGE

**Complete this section for sewage sludge that is land applied unless any of the following conditions apply:**
**The sewage sludge meets the Table 1 ceiling concentrations, the Table 3 pollutant concentrations, Class A pathogen requirements and one of the vector attraction reduction options 1-8 (fill out B.4 instead) (EQ Sludge); or**
**The sewage sludge is sold or given away in a bag or other container for application to the land (fill out B.5 instead); or**
**You provide the sewage sludge to another facility for treatment or blending (fill out B.6 instead).**
**Complete Section C for every site on which the sewage sludge that you reported in B.7 is land applied.**

1. Identification of Land Application Site.
   a. Site name or number: HRSD Progress Farm
   b. Site location (Complete i and ii)
      i. Street or Route#: 645 Firefall Drive
      County:
      City or Town: Virgina Beach State: VA Zip: 23454
      ii. Latitude: 36 46' 15" Longitude: 75 58' 15"
      Method of latitude/longitude determination
      X USGS map _____ Filed survey _____ Other
   c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.

2. Owner Information.
   a. Are you the owner of this land application site? X Yes __No
   b. If no, provide the following information about the owner:
      Name:
      Street or P.O. Box:
      City or Town: _____ State:_____ Zip:
      Phone: ( )

3. Applier Information:
   a. Are you the person who applies, or who is responsible for application of, sewage sludge to this land application site? X Yes __No
   b. If no, provide the following information for the person who applies the sewage sludge:
      Name:
      Street or P.O. Box:
      City or Town:_____ State:_____ Zip:
      Phone: ( )
   c. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the person who applies sewage sludge to this land application site:

| Permit Number: | Type of Permit: |
|---|---|
| VA0081248 | VPDES |
| VAD980720353 | RCRA |
| 60959 | DEQ-Air Division |

4. Site Type. Identify the type of land application site from among the following:
   __Agricultural land __Reclamation site __Forest
   __Public contact site X Other. Describe Research Farm

5. Vector Attraction Reduction.
   Are any vector attraction reduction requirements met when sewage sludge is applied to the land application site?
   ___Yes X No If yes, answer a and b.
   a. Indicate which vector attraction reduction option is met:
      __ Option 9 (Injection below land surface)
      __ Option 10 (Incorporation into soil within 6 hours)
   b. Describe, on this form or on another sheet of paper, any treatment processes used at the land application site to reduce the vector attraction properties of sewage sludge:

# HRSD Permitted Land Application Sites

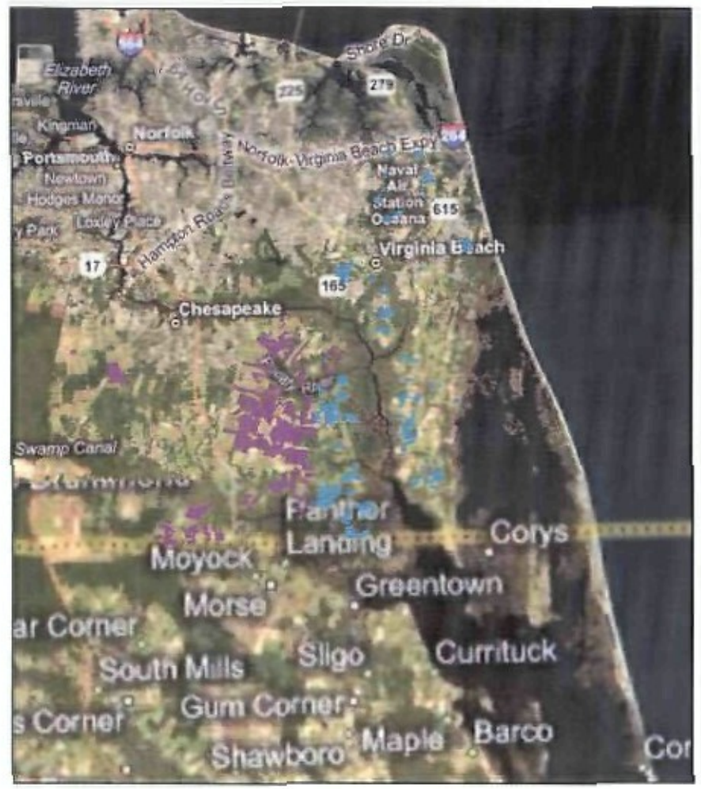

**Legend**

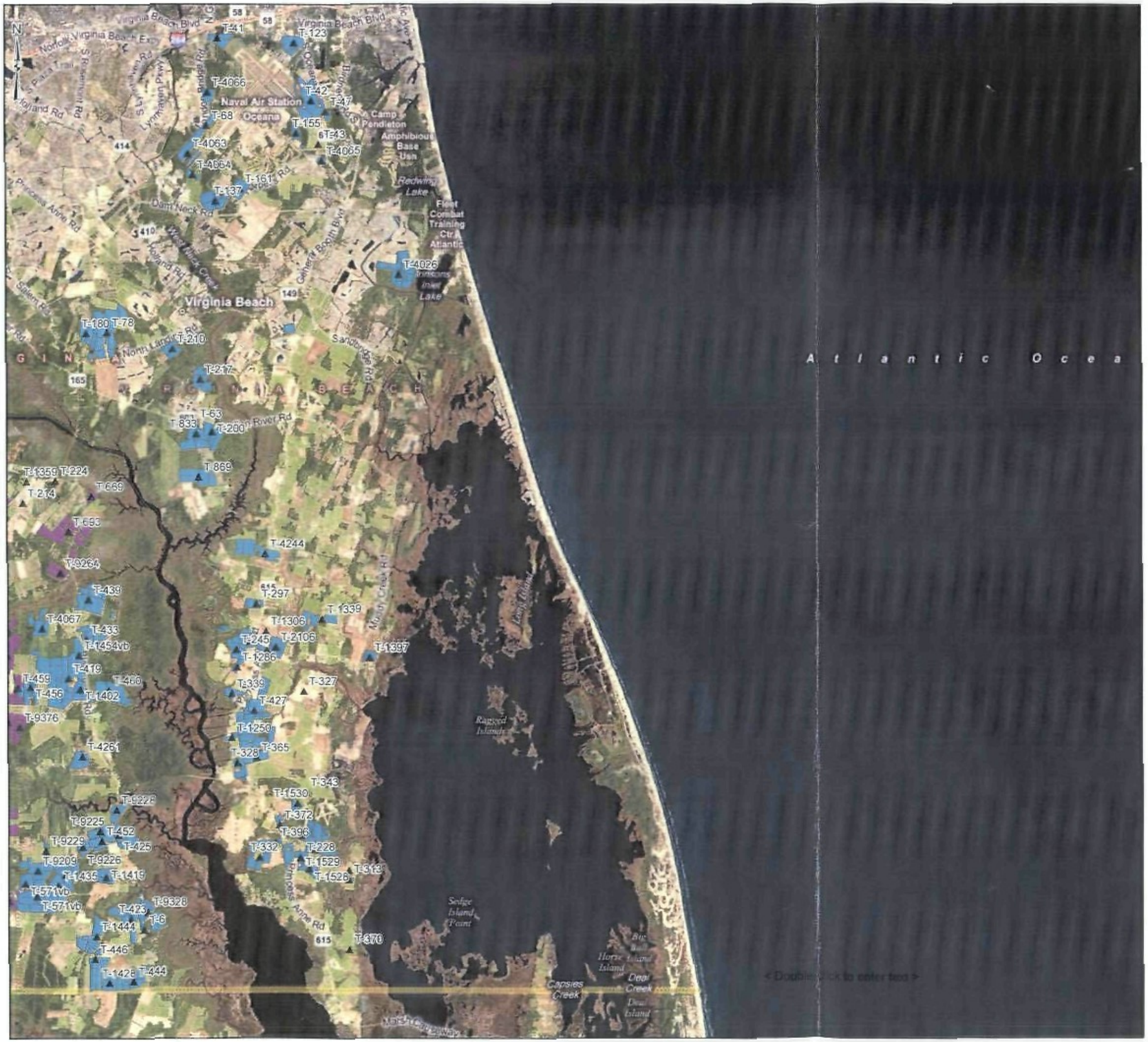
**Permitted Sites**

- Chesapeake
- Virginia Beach

0 3 6 12 18 24 Miles

# HRSD Permitted Land Application Sites




## Legend

**Permitted Sites**

- Chesapeake
- Virginia Beach

0 3 6 12 18 24 Miles


MW 7A + 7B
MW 100B + 100C
MW 6A + 6C
Field 28
MW 5A
MW 1A + 1B
MW 4A + 4B
MW 2A + 2B
MW 3A + 3B
Runoff site

6. Cumulative Loadings and Remaining Allotments. **Not applicable**

**(Complete Question 6 only if the sewage sludge applied to this site since July 20, 1993 is subject to the cumulative pollutant loading rates (CPLRs) - see instructions.)**

a. Have you contacted DEQ or the permitting authority in the state where the sewage sludge subject to the CPLRs will be applied to ascertain whether bulk sewage sludge subject to the CPLRs has been applied to this site since July 20, 1993? ___Yes ___No
If no, sewage sludge subject to the CPLRs may not be applied to this site.
If yes, provide the following information:
Permitting authority:
Contact person:
Phone:( )

b. Based upon this inquiry, has bulk sewage sludge subject to the CPLRs been applied to this site since July 20, 1993? ___Yes ___No If no, skip the rest of Question 6. If yes, answer questions c - e.

c. Site size, in hectares: _____ (one hectare = 2.471 acres)

d. Provide the following information for every facility other than yours that is sending or has sent sewage sludge subject to the CPLRs to this site since July 20, 1993. If more than one such facility sends sewage sludge to this site, attach additional pages as necessary.
Facility name:
Facility contact:
Title:
Phone: ( )
Mailing address.
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

e. Provide the total loading and allotment remaining, in kg/hectare, for each of the following pollutants:

| | Cumulative loading | Allotment remaining |
|---|---|---|
| Arsenic | _____ | |
| Cadmium | _____ | |
| Copper | _____ | |
| Lead | _____ | |
| Mercury | _____ | |
| Nickel | _____ | |
| Selenium | _____ | |
| Zinc | _____ | |

**Complete Questions 7-12 below only if you apply sewage sludge, or you are responsible for land application of sewage sludge. Information required by these questions may be prepared as attachments to this form. Skip the following questions if you contract land application to someone else (as indicated under Section A.7) who is responsible for the operation.**

7. Sludge Characterization. Use the table below or a separate attachment, provide at least one analysis for each parameter.

PCBs (mg/kg)
pH (S. U.)
Percent Solids (%)
Ammonium Nitrogen (mg/kg)
Nitrate Nitrogen (mg/kg)
Total Kjeldahl Nitrogen (mg/kg)
Total Phosphorus (mg/kg)
Total Potassium (mg/kg)
Alkalinity as $CaCO_3$* (mg/kg)

* Lime treated sludge (10% or more lime by dry weight) should be analyzed for percent $CaCO_3$.

8. Storage Requirements.

Existing and proposed sludge storage facilities must provide an estimated annual sludge balance on a monthly basis incorporating such factors as storage capacity, sludge production and land application schedule. Include pertinent calculations justifying storage requirements.

Proposed sludge storage facilities must also provide the following information:

a. A sludge storage site layout on a 7.5 minute topographic quadrangle or other appropriate scaled map to show the following topographic features of the surrounding landscape to a distance of 0.25 mile. Clearly mark the property line.
   1) Water wells, abandoned or operating
   2) Surface waters
   3) Springs
   4) Public water supply(s)
   5) Sinkholes
   6) Underground and/or surface mines
   7) Mine pool (or other) surface water discharge points
   8) Mining spoil piles and mine dumps
   9) Quarry(s)
   10) Sand and gravel pits
   11) Gas and oil wells
   12) Diversion ditch(s)
   13) Agricultural drainage ditch(s)
   14) Occupied dwellings, including industrial and commercial establishments
   15) Landfills or dumps
   16) Other unlined impoundments
   17) Septic tanks and drainfields
   18) Injection wells
   19) Rock outcrops

b. A topographic map of sufficient detail to clearly show the following information:
   1) Maximum and minimum percent slopes
   2) Depressions on the site that may collect water
   3) Drainageways that may attribute to rainfall run-on to or runoff from this site
   4) Portions of the site (if any) which are located with the 100-year floodplain and how the storage facility will be protected from flooding

c. Data and specifications for the storage facility lining material.

d. Plan and cross-sectional views of the storage facility.

e. Depth from the bottom of the storage facility to the seasonal high water table and separation distance to the permanent water table.

9. Land Area Requirements. Provide calculations justifying the land area requirements for land application of sewage sludge taking into consideration average soil productivity group, crop(s) to be grown and most limiting factor(s) of the sewage sludge, specifically Plant Available Nitrogen (PAN), Calcium Carbonate Equivalence (CCE), and metal loadings (CPLR sewage sludge only), where applicable. Relate PAN, CCE, and metal loadings to demonstrate the most limiting factor for land application.

10. Landowner Agreement Forms. Provide a properly completed Sewage Sludge Application Agreement Form (attached) for each landowner if sewage sludge is to be applied onto land not owned by the applicant.

11. Ground Water Monitoring.

Are any ground water monitoring data available for this land application site? _X_ Yes ___No

If yes, submit the ground water monitoring data with this permit application. Also submit a written description of the well locations, approximate depth to ground water, and the ground water monitoring procedures used to obtain these data. **See attachment.**

# PROGRESS FARM GROUNDWATER SAMPLING PLAN

Each well site consists of a pair of monitoring wells, one installed at a depth of 35 feet and another installed to a depth of 50 feet. One site (5A) has only a 50 foot well due to a single continuous water bearing strata between 35 and 50 feet. There are a total of seven well sites and they are located around the perimeter of the Progress Farm.

The generalized groundwater protocol is as follows:

- Groundwater depth is measured and recorded.
- Three to five volumes of groundwater are purged from the well.
- Samples are collected with a battery powered peristaltic pump.
- Samples are preserved and placed on ice for transport to HRSD's Central Environmental Laboratory.

ATLANTIC STP VA0081248 PROGRESS FARM GROUNDWATER DATA

| DATE | WELL | WATER LEVEL | ORGN | NH3 | NOX | TP | PH | ALK | CL | TC | COND | TSS | HARD | AG | AS | BA | CD | CA | CR | CU | HG | MG | MO | PB | SE | ZN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | m | mg/l | mg/l | mg/l | mg/l | su | mg/l | mg/l | mpn/100 ml | umhos/cm | mg/l | mg/l | ug/l | ug/l | ug/l | ug/l | mg/l | ug/l | ug/l | ug/l | mg/l | ug/l | ug/l | ug/l | ug/l |
| 2/19/2009 | 1A | 0.42 | 0.00 | 0.36 | 0.00 | 0.21 | 7.54 | 74 | 19 | 0 | | 5 | 87.6 | 0.00 | 0.00 | 1.17 | 0.00 | 28.3 | 0.31 | 0.00 | 0.00 | 4.14 | 0.46 | 0.12 | 0.00 | 3.3 |
| 2/19/2009 | 1B | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 7.01 | 82 | 22 | 0 | | 1 | 166.0 | 0.00 | 0.98 | 3.39 | 0.00 | 48.3 | 0.00 | 0.00 | 0.00 | 10.90 | 0.61 | 0.00 | 0.00 | 2.4 |
| 2/19/2009 | 2A | 0.54 | 0.00 | 0.55 | 0.00 | 0.40 | 7.51 | 95 | 18 | 0 | 284 | 0 | 92.9 | 0.00 | 0.00 | 2.73 | 0.00 | 29.6 | 0.15 | 3.30 | 0.00 | 4.62 | 0.29 | 0.00 | 0.00 | 5.3 |
| 2/19/2009 | 2B | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 7.91 | 0 | 22 | 0 | 267 | 0 | 76.1 | 0.00 | 0.81 | 6.67 | 0.00 | 15.3 | 0.00 | 0.00 | 0.00 | 9.20 | 0.10 | 0.00 | 0.00 | 0.8 |
| 2/19/2009 | 3A | 0.56 | 0.00 | 1.38 | 0.00 | 0.79 | 7.13 | 261 | 108 | 2 | 841 | 0 | 150.0 | 0.00 | 0.00 | 11.70 | 0.00 | 40.7 | 0.25 | 2.20 | 0.00 | 11.80 | 0.00 | 0.14 | 0.00 | 5.5 |
| 2/19/2009 | 3B | 0.31 | 0.00 | 1.32 | 0.00 | 0.72 | 7.14 | 240 | 88 | 0 | 751 | 0 | 162.0 | 0.00 | 0.00 | 10.80 | 0.00 | 47.7 | 0.28 | 0.00 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 2.4 |
| 2/19/2009 | 4A | 0.54 | 0.00 | 1.51 | 0.00 | 0.61 | 7.03 | 307 | 415 | 0 | 1894 | 2 | 203.0 | 0.00 | 0.00 | 49.20 | 0.00 | 49.2 | 0.31 | 0.00 | 0.00 | 19.50 | 0.00 | 0.00 | 0.00 | 5.6 |
| 2/19/2009 | 4B | 0.51 | 0.00 | 1.07 | 0.00 | 0.66 | 7.39 | 209 | 107 | 0 | 733 | 18 | 163.0 | 0.00 | 0.00 | 5.08 | 0.00 | 50.0 | 0.48 | 0.00 | 0.00 | 9.16 | 0.00 | 0.10 | 0.00 | 1.7 |
| 2/19/2009 | 5A | 0.45 | 0.00 | 1.34 | 0.00 | 0.43 | 6.67 | 211 | 114 | 0 | 797 | 2 | 212.0 | 0.00 | 0.00 | 16.40 | 0.00 | 59.0 | 0.25 | 2.20 | 0.00 | 15.80 | 0.00 | 0.00 | 0.00 | 1.6 |
| 2/20/2009 | 6A | 0.59 | 0.00 | 2.03 | 0.00 | 0.52 | 6.98 | 284 | 43 | 0 | 682 | 0 | 248.0 | 0.00 | 0.00 | 7.63 | 0.00 | 74.9 | 0.23 | 0.00 | 0.00 | 14.80 | 0.00 | 0.00 | 0.00 | 1.7 |
| 2/20/2009 | 6C | 0.62 | 0.00 | 1.46 | 0.00 | 0.68 | 7.02 | 252 | 58 | 0 | 678 | 3 | 232.0 | 0.00 | 0.00 | 3.78 | 0.00 | 68.8 | 0.22 | 0.00 | 0.00 | 14.60 | 0.00 | 0.00 | 0.00 | 1.8 |
| 2/20/2009 | 7A | 0.61 | 0.00 | 2.77 | 0.00 | 0.44 | 7.09 | 281 | 38 | 0 | 581 | 5 | 214.0 | 0.00 | 0.24 | 11.10 | 0.00 | 50.6 | 0.29 | 2.40 | 0.00 | 21.20 | 0.39 | 0.00 | 0.00 | 3.4 |
| 2/20/2009 | 7B | 0.58 | 0.00 | 1.85 | 0.00 | 0.51 | 7.07 | 245 | 31 | 0 | 675 | 2 | 203.0 | 0.00 | 0.00 | 3.03 | 0.00 | 59.9 | 0.25 | 0.00 | 0.00 | 12.90 | 0.00 | 0.00 | 0.00 | 1.1 |
| 3/23/2009 | 1A | 0.62 | 0.00 | 0.41 | 0.00 | 0.22 | 7.55 | 72 | 20 | 0 | 271 | 2 | 86.6 | 0.00 | 0.00 | 0.83 | 0.00 | 28.0 | 0.18 | 0.00 | 0.00 | 4.05 | 0.48 | 0.00 | 0.00 | 2.7 |
| 3/23/2009 | 1B | 0.92 | 0.00 | 0.00 | 0.26 | 0.00 | 7.55 | 86 | 23 | 0 | 411 | 2 | 159.0 | 0.00 | 0.20 | 3.05 | 0.00 | 46.5 | 0.00 | 0.00 | 0.00 | 10.50 | 0.61 | 0.00 | 0.00 | 1.2 |
| 3/23/2009 | 2A | 0.73 | 0.00 | 0.57 | 0.00 | 0.39 | 7.21 | 102 | 19 | 0 | 285 | 0 | 93.9 | 0.00 | 1.00 | 2.68 | 0.00 | 29.9 | 0.12 | 0.00 | 0.00 | 4.68 | 0.31 | 0.00 | 0.00 | 1.2 |
| 3/23/2009 | 2B | 0.72 | 0.00 | 0.23 | 0.00 | 0.00 | 6.31 | 0 | 25 | 0 | 272 | 0 | 80.6 | 0.00 | 0.00 | 7.90 | 0.00 | 16.3 | 0.00 | 0.00 | 0.00 | 9.70 | 0.00 | 0.00 | 0.00 | 1.3 |
| 3/23/2009 | 3A | 0.71 | 0.00 | 1.49 | 0.00 | 0.71 | 7.01 | 241 | 107 | 0 | 837 | 0 | 158.0 | 0.00 | 1.16 | 11.80 | 0.00 | 42.1 | 0.28 | 0.00 | 0.00 | 12.80 | 0.00 | 0.00 | 0.00 | 1.8 |
| 3/23/2009 | 3B | 0.46 | 0.00 | 1.39 | 0.00 | 0.68 | 7.07 | 312 | 89 | 0 | 746 | 1 | 169.0 | 0.00 | 0.00 | 10.80 | 0.00 | 49.3 | 0.28 | 0.00 | 0.00 | 11.10 | 0.00 | 0.00 | 0.00 | 0.7 |
| 3/23/2009 | 4A | 0.71 | 0.00 | 1.65 | 0.00 | 0.61 | 7.10 | 216 | 437 | 0 | 1915 | 2 | 208.0 | 0.00 | 0.00 | 48.10 | 0.00 | 49.1 | 0.36 | 0.00 | 0.00 | 20.70 | 0.00 | 0.00 | 0.00 | 2.3 |
| 3/23/2009 | 4B | 0.67 | 0.00 | 1.15 | 0.00 | 0.62 | 7.10 | 212 | 99 | 0 | 747 | 2 | 167.0 | 0.00 | 0.00 | 5.11 | 0.00 | 50.6 | 0.29 | 0.00 | 0.00 | 9.85 | 0.00 | 0.00 | 0.00 | 7.1 |
| 3/23/2009 | 5A | 0.58 | 0.00 | 1.55 | 0.00 | 0.41 | 6.95 | 211 | 120 | 0 | 771 | 8 | 223.0 | 0.00 | 0.00 | 18.00 | 0.00 | 61.8 | 0.28 | 0.00 | 0.00 | 16.70 | 0.00 | 0.00 | 0.00 | 1.8 |
| 3/23/2009 | 6A | 0.82 | 0.00 | 2.01 | 0.00 | 0.53 | 7.18 | 280 | 41 | 0 | 664 | 0 | 262.0 | 0.00 | 0.00 | 8.42 | 0.00 | 79.1 | 0.24 | 0.00 | 0.00 | 15.70 | 0.00 | 0.00 | 0.00 | 1.2 |
| 3/23/2009 | 6C | 0.86 | 0.00 | 1.44 | 0.00 | 0.70 | 7.21 | 251 | 57 | 0 | 656 | 3 | 242.0 | 0.00 | 0.00 | 4.13 | 0.00 | 71.3 | 0.22 | 0.00 | 0.00 | 15.50 | 0.00 | 0.00 | 0.00 | 1.2 |
| 3/23/2009 | 7A | 0.90 | 0.00 | 2.79 | 0.00 | 0.43 | 7.43 | 289 | 42 | 0 | 667 | 4 | 232.0 | 0.00 | 0.37 | 12.10 | 0.00 | 52.4 | 0.18 | 0.00 | 0.00 | 24.50 | 0.32 | 0.00 | 0.00 | 1.0 |
| 3/23/2009 | 7B | 0.93 | 0.00 | 2.11 | 0.00 | 0.50 | 7.42 | 245 | 31 | 0 | 566 | 2 | 207.0 | 0.00 | 0.00 | 3.28 | 0.00 | 61.5 | 0.25 | 0.00 | 0.00 | 12.90 | 0.00 | 0.00 | 0.00 | 1.8 |
| 4/13/2009 | 1A | 0.86 | 0.00 | 0.37 | 0.00 | 0.23 | 8.26 | 75 | 20 | 130 | 261 | 0 | 87.3 | 0.00 | 0.00 | 0.79 | 0.00 | 28.1 | 0.15 | 0.00 | 0.00 | 4.16 | 0.47 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 1B | 0.85 | 0.00 | 0.00 | 0.00 | 0.00 | 8.22 | 76 | 23 | 0 | 376 | 0 | 156.0 | 0.00 | 1.04 | 2.74 | 0.00 | 45.4 | 0.00 | 0.00 | 0.00 | 10.40 | 0.61 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 2A | 0.72 | 0.00 | 0.72 | 0.00 | 0.39 | 7.59 | 101 | 19 | 0 | 278 | 0 | 95.6 | 0.00 | 0.00 | 2.67 | 0.00 | 30.3 | 0.14 | 0.00 | 0.00 | 4.85 | 0.30 | 0.00 | 0.00 | 1.5 |
| 4/13/2009 | 2B | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 7.69 | 0 | 24 | 0 | 266 | 0 | 79.4 | 0.00 | 1.03 | 7.53 | 0.00 | 15.8 | 0.00 | 0.00 | 0.00 | 9.69 | 0.11 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 3A | 0.73 | 0.00 | 1.49 | 0.00 | 0.76 | 7.66 | 254 | 104 | 0 | 807 | 0 | 154.0 | 0.00 | 0.00 | 11.70 | 0.00 | 41.7 | 0.25 | 0.00 | 0.00 | 12.10 | 0.00 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 3B | 0.59 | 0.00 | 1.50 | 0.00 | 0.72 | 7.63 | 239 | 87 | 0 | 720 | 0 | 165.0 | 0.00 | 0.00 | 10.80 | 0.00 | 48.9 | 0.25 | 0.00 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 4A | 0.68 | 0.00 | 1.70 | 0.00 | 0.61 | 7.14 | 312 | 436 | 0 | 1969 | 2 | 216.0 | 0.00 | 0.00 | 48.30 | 0.00 | 52.9 | 0.37 | 0.00 | 0.00 | 20.40 | 0.00 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 4B | 0.62 | 0.00 | 1.14 | 0.00 | 0.63 | 7.39 | 210 | 98 | 0 | 730 | 2 | 165.0 | 0.00 | 0.00 | 5.35 | 0.00 | 50.3 | 0.31 | 0.00 | 0.00 | 9.49 | 0.00 | 0.00 | 0.00 | 1.7 |
| 4/13/2009 | 5A | 0.57 | 0.00 | 1.36 | 0.00 | 0.41 | 6.90 | 210 | 117 | 0 | 787 | 13 | 224.0 | 0.00 | 0.00 | 18.10 | 0.00 | 62.8 | 0.27 | 0.00 | 0.00 | 16.20 | 0.00 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 6A | 0.79 | 0.00 | 1.97 | 0.00 | 0.52 | 7.18 | 282 | 43 | 0 | 674 | 0 | 263.0 | 0.00 | 0.00 | 8.49 | 0.00 | 79.4 | 0.25 | 0.00 | 0.00 | 15.70 | 0.00 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 6C | 0.78 | | | | | 7.19 | 254 | 55 | 0 | 672 | 10 | 248.0 | 0.00 | 0.00 | 3.93 | 0.00 | 74.2 | 0.25 | 0.00 | 0.00 | 15.10 | 0.00 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 7A | 0.79 | 0.00 | 2.85 | 0.00 | 0.42 | 7.32 | 288 | 42 | 0 | 687 | 3 | 235.0 | 0.00 | 0.24 | 11.80 | 0.00 | 52.4 | 0.21 | 0.00 | 0.00 | 25.20 | 0.27 | 0.00 | 0.00 | 0.0 |
| 4/13/2009 | 7B | 0.76 | 0.00 | 2.25 | 0.00 | 0.54 | 7.29 | 249 | 31 | 0 | 577 | 6 | 212.0 | 0.00 | 0.00 | 3.21 | 0.00 | 63.3 | 0.26 | 0.00 | 0.00 | 13.00 | 0.00 | 0.00 | 0.00 | 0.0 |
| 5/12/2009 | 1A | 0.60 | 0.00 | 0.36 | 0.00 | 0.22 | 7.93 | 81 | 20 | 220 | | 1 | 90.7 | 0.00 | 0.00 | 0.85 | 0.00 | 29.4 | 0.13 | 0.00 | 0.00 | 4.20 | 0.49 | 0.00 | 0.00 | 0.5 |
| 5/12/2009 | 1B | 0.87 | 0.00 | 0.00 | 0.21 | 0.00 | 7.53 | 85 | 23 | 4 | 392 | 1 | 156.0 | 0.00 | 1.10 | 2.97 | 0.00 | 45.7 | 0.00 | 0.00 | 0.00 | 10.20 | 0.60 | 0.00 | 0.00 | 0.0 |
| 5/12/2009 | 2A | 0.77 | 0.00 | 0.56 | 0.00 | 0.40 | 7.73 | 100 | 19 | 0 | 300 | 0 | 99.7 | 0.00 | 0.00 | 2.65 | 0.00 | 31.8 | 0.11 | 0.00 | 0.00 | 4.93 | 0.32 | 0.00 | 0.00 | 0.0 |
| 5/12/2009 | 2B | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 6.54 | 0 | 23 | 0 | 287 | 0 | 81.8 | 0.00 | 0.94 | 7.39 | 0.00 | 16.4 | 0.00 | 0.00 | 0.00 | 9.92 | 0.00 | 0.00 | 0.00 | 0.0 |
| 5/12/2009 | 3A | 0.75 | 0.00 | 1.42 | 0.00 | 0.71 | 7.43 | 256 | 101 | 2 | 852 | 0 | 160.0 | 0.00 | 0.00 | 11.90 | 0.00 | 43.6 | 0.25 | 0.00 | 0.00 | 12.30 | 0.10 | 0.00 | 0.00 | 1.5 |
| 5/12/2009 | 3B | 0.67 | 0.00 | 1.33 | 0.00 | 0.70 | 7.39 | 238 | 84 | 0 | 761 | 1 | 173.0 | 0.00 | 0.00 | 10.50 | 0.00 | 51.3 | 0.24 | 0.00 | 0.00 | 10.80 | 0.00 | 0.00 | 0.00 | 0.0 |
| 5/12/2009 | 4A | 0.72 | 0.00 | 1.68 | 0.00 | 0.57 | 7.28 | 312 | 456 | 0 | 2136 | 2 | 226.0 | 0.00 | 0.00 | 51.00 | 0.00 | 55.0 | 0.31 | 0.00 | 0.00 | 21.40 | 0.00 | 0.00 | 0.00 | 0.0 |
| 5/12/2009 | 4B | 0.70 | 0.00 | 1.14 | 0.00 | 0.61 | 7.45 | 212 | 101 | 0 | 776 | 5 | 170.0 | 0.00 | 0.24 | 5.75 | 0.00 | 51.7 | 0.41 | 0.00 | 0.00 | 9.83 | 0.00 | 0.00 | 0.00 | 2.6 |
| 5/12/2009 | 5A | 0.54 | 0.00 | 1.45 | 0.00 | 0.40 | 6.71 | 211 | 110 | 0 | 794 | 9 | 223.0 | 0.00 | 0.00 | 18.10 | 0.00 | 62.9 | 0.23 | 0.00 | 0.00 | 16.10 | 0.00 | 0.00 | 0.00 | 0.0 |
| 5/12/2009 | 6A | 0.81 | 0.00 | 2.07 | 0.00 | 0.50 | 7.03 | 291 | 42 | 0 | 677 | 0 | 264.0 | 0.00 | 0.00 | 8.69 | 0.00 | 79.8 | 0.22 | 0.00 | 0.00 | 15.70 | 0.00 | 0.00 | 0.00 | 0.6 |
| 5/12/2009 | 6C | 0.81 | 0.00 | 1.55 | 0.00 | 0.65 | 7.07 | 264 | 56 | 0 | 675 | 7 | 250.0 | 0.00 | 0.00 | 3.95 | 0.00 | 74.9 | 0.22 | 0.00 | 0.00 | 15.20 | 0.00 | 0.00 | 0.00 | 0.7 |
| 5/12/2009 | 7A | 0.73 | 0.00 | 2.91 | 0.00 | 0.42 | 7.24 | 303 | 42 | 0 | 698 | 2 | 232.0 | 0.00 | 0.21 | 11.20 | 0.00 | 51.5 | 0.18 | 0.00 | 0.00 | 25.20 | 0.22 | 0.00 | 0.00 | 0.0 |
| 5/12/2009 | 7B | 0.74 | 0.00 | 1.99 | 0.00 | 0.52 | 7.24 | 258 | 32 | 0 | 586 | 4 | 215.0 | 0.00 | 0.00 | 3.08 | 0.00 | 64.5 | 0.22 | 0.00 | 0.00 | 13.20 | 0.00 | 0.00 | 0.00 | 1.0 |
| 6/22/2009 | 1A | 0.89 | 0.00 | 0.38 | 0.00 | 0.22 | 7.93 | 78 | 19 | 0 | 258 | 0 | 86.6 | 0.00 | 0.00 | 0.78 | 0.00 | 28.1 | 0.00 | 0.00 | 0.00 | 3.99 | 0.47 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 1B | 0.87 | 0.00 | 0.00 | 0.00 | 0.00 | 7.92 | 71 | 23 | 0 | 340 | 0 | 143.0 | 0.00 | 1.00 | 2.73 | 0.00 | 41.8 | 0.00 | 0.10 | 0.00 | 9.39 | 0.56 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 2A | 0.73 | 0.00 | 0.50 | 0.00 | 0.38 | 7.64 | 102 | 19 | 0 | 276 | 0 | 96.5 | 0.00 | 0.00 | 2.64 | 0.00 | 30.9 | 0.00 | 0.10 | 0.00 | 4.70 | 0.30 | 0.00 | 0.00 | 0.0 |

ATLANTIC STP VA0081248 PROGRESS FARM GROUNDWATER DATA

| DATE | WELL | WATER LEVEL | ORGN | NH3 | NOX | TP | PH | ALK | CL | TC | COND | TSS | HARD | AG | AS | BA | CD | CA | CR | CU | HG | MG | MO | PB | SE | ZN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | m | mg/l | mg/l | mg/l | mg/l | su | mg/l | mg/l | mpn/100 ml | umhos/cm | mg/l | mg/l | ug/l | ug/l | ug/l | ug/l | mg/l | ug/l | ug/l | ug/l | mg/l | ug/l | ug/l | ug/l | ug/l |
| 6/22/2009 | 2B | 0.80 | 0.00 | 0.22 | 0.00 | 0.00 | 6.85 | 0 | 24 | 0 | 260 | 0 | 79.2 | 0.00 | 0.90 | 7.52 | 0.00 | 15.8 | 0.00 | 0.00 | 0.00 | 9.69 | 0.00 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 3A | 0.69 | 0.00 | 1.43 | 0.00 | 0.76 | 7.42 | 249 | 98 | 0 | 741 | 2 | 156.0 | 0.00 | 0.00 | 11.50 | 0.00 | 42.9 | 0.25 | 0.10 | 0.00 | 11.90 | 0.11 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 3B | 0.67 | 0.00 | 1.32 | 0.00 | 0.73 | 7.49 | 230 | 78 | 2 | 645 | 0 | 157.0 | 0.00 | 0.20 | 10.40 | 0.00 | 46.9 | 0.21 | 0.00 | 0.00 | 9.65 | 0.12 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 4A | 0.57 | 0.00 | 1.60 | 0.00 | 0.65 | 7.41 | 313 | 400 | 0 | 1812 | 2 | 210.0 | 0.00 | 0.00 | 46.60 | 0.00 | 51.8 | 0.25 | 0.10 | 0.00 | 19.60 | 0.00 | 0.00 | 0.00 | 0.8 |
| 6/22/2009 | 4B | 0.61 | 0.00 | 1.15 | 0.00 | 0.64 | 7.40 | 210 | 100 | 0 | 697 | 4 | 161.0 | 0.00 | 0.20 | 5.71 | 0.00 | 48.7 | 0.32 | 0.20 | 0.00 | 9.45 | 0.00 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 5A | 0.12 | 0.00 | 1.40 | 0.00 | 0.44 | 7.49 | 212 | 111 | 0 | 672 | 10 | 214.0 | 0.00 | 0.00 | 17.00 | 0.00 | 59.9 | 0.22 | 0.00 | 0.00 | 15.60 | 0.00 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 6A | 0.74 | 0.00 | 2.00 | 0.00 | 0.52 | 7.60 | 285 | 42 | 0 | 662 | 0 | 260.0 | 0.00 | 0.00 | 8.97 | 0.00 | 77.9 | 0.21 | 0.00 | 0.00 | 15.90 | 0.00 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 6C | 0.76 | 0.00 | 1.37 | 0.00 | 0.67 | 7.57 | 257 | 55 | 0 | 659 | 9 | 238.0 | 0.00 | 0.10 | 3.97 | 0.00 | 70.7 | 0.21 | 0.00 | 0.00 | 14.90 | 0.00 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 7A | 0.74 | 0.56 | 2.71 | 0.00 | 0.43 | 7.72 | 295 | 41 | 0 | 679 | 2 | 227.0 | 0.00 | 0.30 | 11.30 | 0.00 | 49.4 | 0.17 | 0.00 | 0.00 | 25.10 | 0.25 | 0.00 | 0.00 | 0.0 |
| 6/22/2009 | 7B | 0.83 | 0.70 | 1.85 | 0.00 | 0.54 | 7.61 | 251 | 31 | 0 | 575 | 4 | 205.0 | 0.00 | 0.00 | 2.99 | 0.00 | 60.7 | 0.22 | 0.10 | 0.00 | 12.90 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 1A | 0.39 | 0.00 | 0.44 | 0.00 | 0.21 | 7.94 | 77 | 20 | 0 | 264 | 0 | 85.6 | 0.00 | 0.00 | 0.80 | 0.00 | 27.7 | 0.10 | 0.00 | 0.00 | 3.90 | 0.45 | 0.00 | 0.00 | 0.7 |
| 7/14/2009 | 1B | 0.66 | 0.00 | 0.00 | 0.00 | 0.00 | 7.92 | 70 | 23 | 0 | 333 | 0 | 128.0 | 0.00 | 0.97 | 2.17 | 0.00 | 37.7 | 0.00 | 0.00 | 0.00 | 8.30 | 0.47 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 2A | -0.46 | 0.00 | 0.54 | 0.00 | 0.40 | 7.73 | 100 | 19 | 0 | 293 | 0 | 99.2 | 0.00 | 0.00 | 2.81 | 0.00 | 31.7 | 0.00 | 0.00 | 0.00 | 4.87 | 0.27 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 2B | -0.07 | 0.00 | 0.26 | 0.00 | 0.00 | 6.54 | 0 | 21 | 0 | 272 | 0 | 80.2 | 0.00 | 0.78 | 7.51 | 0.00 | 16.0 | 0.00 | 0.00 | 0.00 | 9.70 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 3A | 0.36 | 0.00 | 1.46 | 0.00 | 0.74 | 7.34 | 253 | 99 | 0 | 415 | 0 | 163.0 | 0.00 | 0.00 | 11.30 | 0.00 | 44.8 | 0.22 | 0.00 | 0.00 | 12.40 | 0.00 | 0.00 | 0.00 | 1.1 |
| 7/14/2009 | 3B | 0.46 | 0.00 | 1.29 | 0.00 | 0.71 | 7.43 | 206 | 64 | 0 | 587 | 0 | 148.0 | 0.00 | 0.11 | 8.74 | 0.00 | 44.3 | 0.20 | 0.00 | 0.00 | 9.04 | 0.11 | 0.00 | 0.00 | 0.6 |
| 7/14/2009 | 4A | 0.15 | 0.00 | 1.66 | 0.00 | 0.60 | 7.28 | 314 | 457 | 0 | 1968 | 2 | 240.0 | 0.00 | 0.13 | 48.10 | 0.00 | 59.0 | 0.28 | 0.00 | 0.00 | 22.50 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 4B | 0.22 | 0.00 | 1.19 | 0.00 | 0.77 | 7.32 | 200 | 95 | 0 | 691 | 27 | 167.0 | 0.00 | 0.44 | 7.06 | 0.00 | 50.7 | 0.96 | 0.47 | 0.00 | 9.78 | 0.00 | 0.28 | 0.00 | 1.9 |
| 7/14/2009 | 5A | 0.08 | 0.00 | 1.38 | 0.00 | 0.41 | 6.67 | 210 | 105 | 0 | 750 | 7 | 226.0 | 0.00 | 0.00 | 17.10 | 0.00 | 63.4 | 0.22 | 0.00 | 0.00 | 16.50 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 6A | 0.42 | 0.00 | 2.02 | 0.00 | 0.54 | 6.94 | 260 | 1 | 0 | 641 | 42 | 258.0 | 0.00 | 0.00 | 9.10 | 0.00 | 77.6 | 0.21 | 0.00 | 0.00 | 15.70 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 6C | 0.47 | 0.00 | 1.56 | 0.00 | 0.66 | 7.14 | 258 | 56 | 0 | 677 | 4 | 245.0 | 0.00 | 0.00 | 3.99 | 0.00 | 72.9 | 0.21 | 0.00 | 0.00 | 15.40 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 7A | 0.45 | 0.00 | 2.93 | 0.00 | 0.45 | 7.23 | 294 | 42 | 0 | 566 | 0 | 241.0 | 0.00 | 0.23 | 11.00 | 0.00 | 52.3 | 0.17 | 0.00 | 0.00 | 26.90 | 0.17 | 0.00 | 0.00 | 0.0 |
| 7/14/2009 | 7B | 0.54 | 0.00 | 2.05 | 0.00 | 0.56 | 7.22 | 255 | 31 | 0 | 599 | 2 | 216.0 | 0.00 | 0.00 | 3.08 | 0.00 | 64.2 | 0.21 | 0.00 | 0.00 | 13.60 | 0.00 | 0.00 | 0.00 | 0.0 |
| 10/19/2009 | 1A | 0.47 | | | 0.00 | | 8.04 | | | 0 | | 2 | | | | | | | | 0.50 | | | | | | |
| 10/19/2009 | 1B | | | | 0.20 | | 7.93 | | | 0 | | 0 | | | | | | | | 0.70 | | | | | | |
| 10/19/2009 | 2A | 0.56 | | | 0.00 | | 7.81 | | | 0 | | 0 | | | | | | | | 0.70 | | | | | | |
| 10/19/2009 | 2B | 0.57 | | | 0.00 | | 6.65 | | | 0 | | 2 | | | | | | | | 0.60 | | | | | | |
| 10/19/2009 | 3A | 0.54 | | | 0.00 | | 7.54 | | | 23 | | 0 | | | | | | | | 0.60 | | | | | | |
| 10/19/2009 | 3B | 0.45 | | | 0.00 | | 7.52 | | | 0 | | 1 | | | | | | | | 0.00 | | | | | | |
| 10/19/2009 | 4A | 0.38 | | | 0.00 | | 7.39 | | | 0 | | 3 | | | | | | | | 0.20 | | | | | | |
| 10/19/2009 | 4B | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10/19/2009 | 5A | 0.36 | | | 0.00 | | 6.91 | | | 0 | | 10 | | | | | | | | 0.00 | | | | | | |
| 10/19/2009 | 6A | 0.59 | | | 0.00 | | 7.23 | | | 0 | | 0 | | | | | | | | 0.20 | | | | | | |
| 10/19/2009 | 6C | 0.32 | | | 0.00 | | 7.14 | | | 0 | | 8 | | | | | | | | 0.60 | | | | | | |
| 10/19/2009 | 7A | 0.65 | | | 0.00 | | 7.63 | | | 0 | | 4 | | | | | | | | 1.10 | | | | | | |
| 10/19/2009 | 7B | 0.78 | | | 0.00 | | 7.19 | | | 0 | | 6 | | | | | | | | 0.50 | | | | | | |
| 11/23/2009 | 3A | | | | | | | | | 2 | | | | | | | | | | | | | | | | |
| 3/18/2010 | 1A | 0.70 | 0.00 | 0.37 | 0.00 | 0.00 | 8.09 | 69 | 21 | 0 | 616 | 0 | 87.3 | 0.00 | 0.00 | 0.83 | 0.00 | 28.2 | 0.00 | 2.59 | 0.00 | 4.09 | 0.44 | 0.00 | 0.00 | 3.4 |
| 3/18/2010 | 1B | 0.98 | 0.00 | 0.00 | 0.20 | 0.00 | 7.66 | 61 | 22 | 30 | 298 | 2 | 101.0 | 0.00 | 1.21 | 4.14 | 0.00 | 30.2 | 0.00 | 1.67 | 0.00 | 6.20 | 0.28 | 0.00 | 0.00 | 8.2 |
| 3/18/2010 | 2A | 0.83 | 0.00 | 0.54 | 0.00 | 0.38 | 7.93 | 99 | 19 | 0 | 294 | 0 | 99.0 | 0.00 | 0.00 | 3.83 | 0.00 | 31.6 | 0.00 | 0.31 | 0.00 | 4.88 | 0.32 | 0.00 | 0.00 | 3.0 |
| 3/18/2010 | 2B | 0.86 | 0.00 | 0.00 | 0.00 | 0.00 | 6.29 | 0 | 24 | 0 | 277 | 2 | 84.4 | 0.00 | 0.39 | 8.38 | 0.00 | 17.8 | 1.10 | 3.50 | 0.00 | 9.70 | 0.00 | 0.00 | 0.00 | 6.1 |
| 3/18/2010 | 3A | 0.84 | 0.00 | 1.39 | 0.00 | 0.69 | 7.07 | 242 | 99 | 0 | 769 | 0 | 161.0 | 0.00 | 0.00 | 11.50 | 0.00 | 44.1 | 0.20 | 4.69 | 0.00 | 12.30 | 0.00 | 0.00 | 0.00 | 5.1 |
| 3/18/2010 | 3B | 0.66 | 0.00 | 1.24 | 0.00 | 0.63 | 7.64 | 225 | 74 | 0 | 680 | 74 | 166.0 | 0.00 | 0.12 | 9.75 | 0.00 | 49.8 | 0.20 | 5.61 | 0.00 | 10.20 | 0.10 | 0.00 | 0.00 | 6.5 |
| 3/18/2010 | 4A | 0.81 | 0.00 | 1.71 | 0.00 | 0.58 | 7.15 | 318 | 530 | 0 | 2236 | 2 | 245.0 | 0.00 | 0.00 | 56.80 | 0.00 | 58.7 | 0.20 | 2.61 | 0.00 | 24.00 | 0.00 | 0.00 | 0.00 | 7.2 |
| 3/18/2010 | 4B | 0.95 | 0.00 | 1.12 | 0.00 | 0.64 | 7.54 | 212 | 107 | 0 | 776 | 46 | 178.0 | 0.00 | 0.86 | 10.20 | 0.00 | 53.1 | 1.97 | 4.86 | 0.00 | 11.00 | 0.15 | 1.21 | 0.00 | 8.1 |
| 3/18/2010 | 5A | 0.62 | 0.00 | 1.38 | 0.00 | 0.41 | 6.93 | 207 | 111 | 0 | 746 | 13 | 221.0 | 0.00 | 0.00 | 18.10 | 0.00 | 61.2 | 0.20 | 5.70 | 0.00 | 16.50 | 0.00 | 0.00 | 0.00 | 5.7 |
| 3/18/2010 | 6A | 0.87 | 0.00 | 2.02 | 0.00 | 0.52 | 7.15 | 290 | 41 | 0 | 637 | 0 | 268.0 | 0.00 | 0.00 | 9.05 | 0.00 | 80.0 | 0.26 | 7.31 | 0.00 | 16.50 | 0.11 | 0.00 | 0.00 | 11.4 |
| 3/18/2010 | 6C | 0.62 | 0.00 | 1.45 | 0.00 | 0.62 | 7.11 | 253 | 57 | 0 | 709 | 16 | 248.0 | 0.00 | 0.00 | 4.36 | 0.05 | 73.3 | 0.34 | 5.95 | 0.00 | 15.70 | 0.00 | 0.00 | 0.00 | 6.8 |
| 3/18/2010 | 7A | 0.85 | 0.00 | 2.98 | 0.00 | 0.47 | 7.39 | 293 | 44 | 0 | 734 | 2 | 240.0 | 0.00 | 0.26 | 11.10 | 0.00 | 52.0 | 0.13 | 3.43 | 0.00 | 26.90 | 0.16 | 0.00 | 0.00 | 3.4 |
| 3/18/2010 | 7B | 0.84 | 0.00 | 2.01 | 0.00 | 0.49 | 7.14 | 253 | 32 | 0 | 558 | 3 | 217.0 | 0.00 | 0.00 | 2.95 | 0.05 | 63.8 | 0.18 | 1.37 | 0.00 | 14.10 | 0.00 | 0.00 | 0.00 | 2.6 |
| 3/31/2010 | 1B | 1.03 | | | | | 7.89 | | | 2 | 302 | | | | | | | | | | | | | | | |
| 5/19/2010 | 1A | 0.49 | 0.55 | 0.39 | 0.00 | 0.22 | 7.79 | 68 | 18 | 0 | 276 | 0 | 95.3 | 0.00 | 0.00 | 0.75 | 0.00 | 31.0 | 0.00 | 0.00 | 0.00 | 4.33 | 0.47 | 0.00 | 0.00 | 0.0 |
| 5/19/2010 | 1B | 0.87 | 0.00 | 0.25 | 0.00 | 0.00 | 7.89 | 62 | 22 | 0 | 296 | 0 | 110.0 | 0.00 | 1.18 | 4.05 | 0.00 | 32.9 | 0.00 | 0.20 | 0.00 | 6.75 | 0.30 | 0.00 | 0.00 | 1.2 |
| 5/19/2010 | 2A | 0.64 | 0.00 | 0.48 | 0.00 | 0.36 | 7.72 | 93 | 19 | 0 | 296 | 0 | 105.0 | 0.00 | 0.00 | 2.97 | 0.00 | 34.1 | 0.00 | 0.20 | 0.00 | 4.90 | 0.34 | 0.00 | 0.00 | 1.5 |
| 5/19/2010 | 2B | 0.76 | 0.00 | 0.69 | 0.00 | 0.00 | 6.67 | 0 | 25 | 0 | 289 | 0 | 89.7 | 0.00 | 0.61 | 8.32 | 0.00 | 18.7 | 0.00 | 0.10 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 1.0 |

ATLANTIC STP VA0081248 PROGRESS FARM GROUNDWATER DATA

| DATE | WELL | WATER LEVEL | ORGN | NH3 | NOX | TP | PH | ALK | CL | TC | COND | TSS | HARD | AG | AS | BA | CD | CA | CR | CU | HG | MG | MO | PB | SE | ZN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | m | mg/l | mg/l | mg/l | mg/l | su | mg/l | mg/l | mpn/100 ml | umhos/cm | mg/l | mg/l | ug/l | ug/l | ug/l | ug/l | mg/l | ug/l | ug/l | ug/l | mg/l | ug/l | ug/l | ug/l | ug/l |
| 5/19/2010 | 3A | 0.60 | 0.50 | 1.38 | 0.20 | 0.71 | 7.43 | 241 | 92 | 0 | 777 | 0 | 165.0 | 0.00 | 0.00 | 10.70 | 0.05 | 46.2 | 0.23 | 0.50 | 0.00 | 12.00 | 0.00 | 0.00 | 0.00 | 2.1 |
| 5/19/2010 | 3B | 0.61 | 0.00 | 1.21 | 0.00 | 0.69 | 7.49 | 205 | 60 | 0 | 617 | 0 | 163.0 | 0.00 | 0.12 | 8.23 | 0.00 | 49.3 | 0.16 | 0.00 | 0.00 | 9.57 | 0.13 | 0.00 | 0.00 | 1.6 |
| 5/19/2010 | 4A | 0.48 | 0.55 | 1.71 | 0.00 | 0.63 | 7.14 | 321 | 547 | 0 | 2367 | 1 | 249.0 | 0.00 | 0.00 | 53.90 | 0.00 | 59.8 | 0.16 | 0.00 | 0.00 | 24.20 | 0.00 | 0.00 | 0.00 | 0.8 |
| 5/19/2010 | 4B | 0.55 | 0.00 | 1.10 | 0.00 | 0.60 | 7.48 | 212 | 103 | 0 | 770 | 3 | 172.0 | 0.00 | 0.23 | 5.87 | 0.00 | 52.2 | 0.40 | 0.70 | 0.00 | 10.10 | 0.00 | 0.12 | 0.00 | 1.4 |
| 5/19/2010 | 5A | 0.36 | 0.00 | 1.49 | 0.00 | 0.40 | 6.86 | 211 | 112 | 0 | 816 | 13 | 228.0 | 0.00 | 0.00 | 16.60 | 0.00 | 64.4 | 0.19 | 0.00 | 0.00 | 16.40 | 0.00 | 0.00 | 0.00 | 0.9 |
| 5/19/2010 | 6A | 0.57 | 0.59 | 2.02 | 0.00 | 0.53 | 7.12 | 283 | 40 | 0 | 704 | 40 | 262.0 | 0.00 | 0.00 | 9.18 | 0.00 | 78.4 | 0.18 | 1.78 | 0.00 | 16.10 | 2.06 | 0.00 | 0.00 | 5.0 |
| 5/19/2010 | 6C | 0.58 | 0.53 | 1.47 | 0.00 | 0.71 | 7.01 | 261 | 58 | 0 | 714 | 16 | 246.0 | 0.00 | 0.11 | 4.38 | 0.00 | 73.7 | 0.36 | 0.20 | 0.00 | 15.00 | 0.00 | 0.11 | 0.00 | 1.8 |
| 5/19/2010 | 7A | 0.49 | 0.70 | 2.94 | 0.00 | 0.41 | 7.29 | 294 | 44 | 0 | 742 | 2 | 246.0 | 0.00 | 0.23 | 10.30 | 0.00 | 53.9 | 0.14 | 0.00 | 0.00 | 27.20 | 0.16 | 0.00 | 0.00 | 0.6 |
| 5/19/2010 | 7B | 0.63 | 0.65 | 2.00 | 0.00 | 0.53 | 7.16 | 256 | 31 | 0 | 623 | 6 | 219.0 | 0.00 | 0.00 | 3.07 | 0.00 | 65.0 | 0.17 | 2.49 | 0.00 | 13.70 | 0.00 | 0.00 | 0.00 | 2.6 |
| 7/28/2010 | 1A | 0.18 | 0.00 | 0.38 | 0.00 | 0.22 | 7.81 | 85 | 20 | 0 | 277 | 0 | 91.1 | 0.00 | 0.00 | 0.72 | 0.00 | 29.9 | 0.00 | 0.00 | 0.00 | 4.01 | 0.46 | 0.00 | 0.00 | 1.2 |
| 7/28/2010 | 1B | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 7.91 | 77 | 22 | 0 | 285 | 0 | 104.0 | 0.00 | 1.32 | 3.44 | 0.00 | 31.2 | 0.00 | 0.00 | 0.00 | 6.34 | 0.29 | 0.10 | 0.00 | 0.9 |
| 7/28/2010 | 2A | 0.27 | 0.00 | 0.48 | 0.00 | 0.37 | 7.75 | 104 | 19 | 0 | 313 | 0 | 108.0 | 0.00 | 0.20 | 2.87 | 0.00 | 35.2 | 0.00 | 0.00 | 0.00 | 4.89 | 0.23 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 2B | 0.42 | 0.00 | 0.00 | 0.00 | 0.00 | 6.46 | 31 | 25 | 0 | 286 | 0 | 86.0 | 0.00 | 0.66 | 8.29 | 0.05 | 17.4 | 0.00 | 0.00 | 0.00 | 10.30 | 0.00 | 0.00 | 0.00 | 2.0 |
| 7/28/2010 | 3A | 0.19 | 0.00 | 1.14 | 0.00 | 0.75 | 7.39 | 210 | 61 | 0 | 617 | 0 | 131.0 | 0.00 | 0.00 | 8.29 | 0.00 | 36.4 | 0.00 | 0.00 | 0.00 | 9.63 | 0.19 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 3B | 0.40 | 0.00 | 0.74 | 0.00 | 0.48 | 7.47 | 166 | 41 | 0 | 447 | 0 | 141.0 | 0.00 | 0.00 | 5.87 | 0.00 | 43.2 | 0.00 | 0.00 | 0.00 | 8.16 | 0.26 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 3B | 0.40 | 0.00 | 0.75 | 0.00 | 0.50 | 7.47 | 167 | 41 | 0 | 447 | 0 | 144.0 | 0.00 | 0.00 | 5.98 | 0.00 | 44.4 | 0.00 | 0.00 | 0.00 | 8.06 | 0.26 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 4A | -0.03 | 0.00 | 1.49 | 0.00 | 0.61 | 7.19 | 318 | 405 | | 1825 | 0 | 218.0 | 0.00 | 0.00 | 46.80 | 0.00 | 54.4 | 0.21 | 0.00 | 0.00 | 19.90 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 4B | 0.07 | 0.00 | 0.99 | 0.20 | 0.60 | 7.37 | 200 | 84 | 0 | 643 | 1 | 161.0 | 0.00 | 0.22 | 5.90 | 0.00 | 49.1 | 0.56 | 0.00 | 0.00 | 9.39 | 0.00 | 0.21 | 0.00 | 1.3 |
| 7/28/2010 | 5A | -0.70 | 0.00 | 1.28 | 0.00 | 0.40 | 6.86 | 207 | 115 | 0 | 776 | 9 | 221.0 | 0.00 | 0.00 | 18.20 | 0.00 | 62.4 | 0.00 | 0.00 | 0.00 | 15.70 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 6A | 0.16 | 0.00 | 2.06 | 0.00 | 0.52 | 6.85 | 291 | 41 | 0 | 589 | 0 | 265.0 | 0.00 | 0.00 | 8.64 | 0.00 | 80.3 | 0.20 | 0.00 | 0.00 | 15.70 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 6C | 0.29 | 0.00 | 1.43 | 0.00 | 0.65 | 7.03 | 259 | 57 | 0 | 677 | 8 | 251.0 | 0.00 | 0.00 | 3.85 | 0.00 | 76.2 | 0.00 | 0.00 | 0.00 | 14.90 | 0.00 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 7A | 0.26 | 0.00 | 2.66 | 0.00 | 0.42 | 7.07 | 294 | 40 | 2 | 659 | 3 | 230.0 | 0.00 | 0.22 | 11.40 | 0.00 | 53.0 | 0.00 | 0.00 | 0.00 | 23.60 | 0.30 | 0.00 | 0.00 | 0.0 |
| 7/28/2010 | 7B | 0.37 | 0.00 | 1.94 | 0.00 | 0.55 | 7.12 | 258 | 32 | 0 | 589 | 2 | 222.0 | 0.00 | 0.00 | 2.74 | 0.00 | 66.2 | 0.00 | 0.00 | 0.00 | 13.70 | 0.00 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 2A | 0.64 | 0.00 | 0.68 | 0.00 | 0.35 | 7.84 | 94 | 20 | 2 | 283 | 0 | 105.0 | 0.00 | 0.00 | 3.01 | 0.06 | 34.1 | 0.00 | 0.39 | 0.00 | 4.86 | 0.30 | 0.19 | 0.00 | 0.0 |
| 11/16/2010 | 2B | 0.68 | 0.00 | 0.29 | 0.00 | 0.00 | 6.47 | 0 | 24 | 0 | 275 | 0 | 91.6 | 0.00 | 0.64 | 9.08 | 0.00 | 18.6 | 0.00 | 0.00 | 0.00 | 11.00 | 0.00 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 3A | 0.60 | 0.00 | 1.21 | 0.00 | 0.71 | 7.50 | 190 | 52 | 0 | 520 | 0 | 144.0 | 0.00 | 0.00 | 8.09 | 0.00 | 40.7 | 0.00 | 0.00 | 0.00 | 10.20 | 0.18 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 3B | 0.51 | 0.00 | 0.92 | 0.00 | 0.55 | 7.44 | 197 | 53 | 0 | 530 | 0 | 172.0 | 0.00 | 0.12 | 7.25 | 0.00 | 53.3 | 0.00 | 0.00 | 0.00 | 9.49 | 0.16 | 0.10 | 0.00 | 0.0 |
| 11/16/2010 | 4A | 0.45 | 0.00 | 1.59 | 0.00 | 0.68 | 7.27 | 313 | 388 | 0 | 1739 | 0 | 218.0 | 0.00 | 0.00 | 45.20 | 0.00 | 54.8 | 0.22 | 0.00 | 0.00 | 19.70 | 0.00 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 4B | 0.43 | 0.00 | 1.27 | 0.00 | 0.63 | 7.32 | 214 | 99 | 0 | 710 | 1 | 184.0 | 0.00 | 0.12 | 5.78 | 0.00 | 56.4 | 0.00 | 0.00 | 0.00 | 10.60 | 0.00 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 5A | 0.31 | 0.00 | 1.39 | 0.00 | 0.42 | 7.01 | 214 | 109 | 0 | 756 | 14 | 250.0 | 0.00 | 0.00 | 17.70 | 0.00 | 69.9 | 0.00 | 0.00 | 0.00 | 18.40 | 0.00 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 6A | 0.57 | 0.00 | 2.12 | 0.00 | 0.53 | 7.06 | 290 | 40 | 0 | 672 | 0 | 282.0 | 0.00 | 0.00 | 8.74 | 0.00 | 85.2 | 0.00 | 0.00 | 0.00 | 16.90 | 0.00 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 6C | 0.58 | 0.00 | 1.55 | 0.00 | 0.70 | 7.12 | 259 | 55 | 0 | 657 | 10 | 258.0 | 0.00 | 0.00 | 3.86 | 0.00 | 77.8 | 0.20 | 0.00 | 0.00 | 15.40 | 0.00 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 7A | 0.57 | 0.00 | 2.82 | 0.00 | 0.48 | 7.27 | 290 | 39 | 0 | 667 | 3 | 247.0 | 0.00 | 0.35 | 11.60 | 0.00 | 60.4 | 0.00 | 0.00 | 0.00 | 23.20 | 0.32 | 0.00 | 0.00 | 0.0 |
| 11/16/2010 | 7B | 0.62 | 0.00 | 2.06 | 0.00 | 0.55 | 7.28 | 262 | 31 | 0 | 575 | 4 | 230.0 | 0.00 | 0.00 | 2.90 | 0.00 | 66.5 | 0.00 | 0.00 | 0.00 | 14.40 | 0.00 | 0.00 | 0.00 | 0.0 |
| 11/17/2010 | 1A | 0.55 | 0.00 | 0.44 | 0.00 | 0.21 | 7.93 | 80 | 20 | 0 | 252 | 0 | 96.9 | 0.00 | 0.00 | 0.70 | 0.00 | 31.8 | 0.00 | 0.00 | 0.00 | 4.25 | 0.45 | 0.00 | 0.00 | 0.0 |
| 11/17/2010 | 1B | 0.81 | 0.00 | 0.00 | 0.00 | 0.00 | 7.93 | 71 | 22 | 0 | 270 | 0 | 111.0 | 0.00 | 1.37 | 2.87 | 0.00 | 33.7 | 0.20 | 0.00 | 0.00 | 6.64 | 0.28 | 0.00 | 0.00 | 0.0 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| min | | -0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 6.29 | 0 | 1 | 0 | 252 | 0 | 76.10 | 0.00 | 0.00 | 0.70 | 0.00 | 15.30 | 0.00 | 0.00 | 0.00 | 3.90 | 0.00 | 0.00 | 0.00 | 0.0 |
| max | | 1.03 | 0.70 | 2.98 | 0.26 | 0.79 | 8.26 | 321 | 547 | 220 | 2367 | 74 | 282.00 | 0.00 | 1.37 | 56.80 | 0.06 | 85.20 | 1.97 | 7.31 | 0.00 | 27.20 | 2.06 | 1.21 | 0.00 | 11.4 |
| avg | | 0.58 | 0.04 | 1.25 | 0.01 | 0.44 | 7.33 | 194 | 82 | 3 | 669 | 4 | 176.32 | 0.00 | 0.19 | 10.35 | 0.00 | 49.62 | 0.18 | 0.51 | 0.00 | 12.73 | 0.15 | 0.02 | 0.00 | 1.4 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Water level is expressed as meters relative to mean sea level (MSL) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hardness expressed as mgeq CaCO3/l | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Metals were analyzed as total metals (not dissolved) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Metals were sampled and analyzed using standard (non-clean) methods and may contain a positive bias. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Values less than analytical report limits are expressed as zero. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| "A" wells are installed to a depth of approximately 50 feet | | | | | | | | | | | | | | | | | | | | | | | | | | |
| "B" wells are installed to a depth of approximately 35 feet. | | | | | | | | | | | | | | | | | | | | | | | | | | |

12. Land Application Site Information.

**(Complete Items a-d for sites receiving infrequent application - land application of sewage sludge up to the agronomic rate at a frequency of once in a 3 year period; complete Items a-h for sites receiving frequent application - land application of sewage sludge in excess of 70% the agronomic rate at a frequency greater than once in a 3 year period)**

a. Provide a general location map for each county which clearly indicates the location of all the land application sites.

b. For each land application site provide a site plan of sufficient detail to clearly show the concerned landscape features and associated buffer zones (See instructions). Provide a legend for each landscape feature and the net acreage for each field taking into account the proposed buffer zones.

c. In order to ensure that land application of bulk sewage sludge will not impact federally listed threatened or endangered species or federally designated critical habitat, the applicant must notify the field office of the U. S. Department of the Interior, Fish and Wildlife Service (FWS), by a letter, the proposed land application activities with the identification of the land application sites. The address and phone number of FWS are provided below.

U. S. Fish and Wildlife Service
Virginia Field Office
P. O. Box 480
White Marsh, VA 23183
TEL: (804)693-6694

Provide a copy of the notification letter with this application form.

d. Provide a soil survey map, preferably photographically based, with the field boundaries clearly marked. (A USDA-SCS soil survey map should be provided, if available.)
Provide a detailed legend for each soil survey map which uses accepted USDA-SCS descriptions of the typifying pedon for each soil series (soil type). Complex associations may be described as a range of characteristics. Soil descriptions shall include as a minimum the following information.

1) Soil symbol
2) Soil series, textural phase and slope range
3) Depth to seasonal high water table
4) Depth to bedrock
5) Estimated soil productivity group (for the proposed crop rotation)

**Item e - h are required for sites receiving frequent application of sewage sludge**

e. In order to verify the information provided in item d, characterize the soil at each land application site. Representative soil borings or test pits to a depth of five feet or to bedrock if shallower, are to be coordinated for the typifying pedon of each soil series (soil type). Soil descriptions shall include as a minimum the following information:

1). Soil symbol
2). Soil series, textural phase and slope range
3). Depth to seasonal high water table
4). Depth to bedrock
5). Estimated soil productivity group (for the proposed crop rotation)